



**THISTLE WIND  
PARTNERS**

## **Ayre Offshore Wind Farm**

Habitats Regulations Appraisal Stage 1 Likely  
Significant Effects Screening Report

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## Contents

Executive Summary.....	VI
Glossary .....	VII
Abbreviations .....	XVI
Units.....	XVIII
1 Introduction .....	1
1.1 Overview .....	1
1.2 Habitats Regulations Appraisal.....	2
1.3 Purpose of this Report .....	3
1.4 Structure of this Report.....	3
1.5 Project Overview .....	4
1.6 Relevant Consultations .....	6
2 Habitats Regulations Process .....	12
2.1 Legislation context.....	12
2.2 European Sites Post EU Exit – the National Site Network.....	12
2.3 The HRA Process.....	13
2.4 Offshore Wind Energy Draft Sectoral Marine Plan: Habitats Regulations Appraisal	16
2.5 Process for Identifying European Sites and Relevant Qualifying Features .....	17
3 Project Description.....	19
3.1 Introduction .....	19
3.2 Offshore Generation Assets .....	19
3.3 Offshore Transmission Assets .....	21
3.4 Seabed Preparation.....	23
3.5 Scour Protection .....	24
3.6 Wet Storage .....	24
3.7 Construction.....	25
3.8 Operation and Maintenance.....	25
3.9 Decommissioning and Repowering.....	26
4 Identification of European Sites and Features .....	27
4.2 Sites designated for Annex I habitats (offshore and coastal).....	27
4.3 Sites Designated for Annex II Diadromous Fish and Shellfish.....	28
4.4 Sites Designated for Annex II Marine Mammal Features.....	38
4.5 Sites designated for Annex II species (Onshore).....	46
4.6 Sites Designated for Marine Ornithological Features.....	50
4.7 Sites Designated for Onshore Ornithological Features.....	92
5 Assessment of likely significant effect.....	102
5.1 Methodology.....	102
5.2 Assessment of LSE for Annex I Habitat Features .....	103
5.3 Assessment of LSE for Annex II Diadromous Fish and Shellfish Features .....	103

5.4	Assessment of LSE for Annex II Marine Mammal Features .....	116
5.5	Assessment of LSE for Annex II Species (Onshore).....	136
5.6	Assessment of LSE for Marine Ornithological Features .....	140
5.7	Assessment of LSE for Onshore Ornithological Features .....	190
6	Approach to the In-Combination Assessment .....	204
7	Summary of LSE .....	205
8	References.....	280

## List of Tables

Table 1.1:	Summary of Consultation Undertaken to Date which is of Relevance to the Stage 1 LSE Screening.....	7
Table 2.1:	Criteria for Initial Identification of Relevant European Sites .....	17
Table 3.1:	Maximum PDE for the IACs.....	20
Table 3.2:	Maximum PDE for the Interconnector Cables.....	21
Table 3.3:	PDE for Offshore Export Cable .....	22
Table 4.1:	European Sites Designated for Annex II Diadromous Fish and Shellfish Species Taken Forward for the Assessment of LSE.....	34
Table 4.2:	European Sites Designated for Annex II Marine Mammal Features Taken Forward for the Assessment of LSE .....	42
Table 4.3:	European Sites Designated for Annex II Species (Onshore) to be Taken Forward for the Assessment of LSE .....	48
Table 4.4:	Recommended Foraging Range of the Species Considered in this LSE Screening (taken from NatureScot, 2023) .....	52
Table 4.5:	Proportion Contribution of Different UK SPA populations to Seasonal BDMPS Populations Overlapping the Proposed Development (Based on Adult Birds Only), Derived from Furness (2015) – Part 1. ....	56
Table 4.6:	Proportion contribution of different UK SPA populations to seasonal BDMPS populations overlapping the Proposed Development (based on adult birds only), derived from Furness (2015) – Part 2 .....	61
Table 4.7:	European Sites Designated for Marine Ornithological Features Taken Forward for the Assessment of LSE – Breeding Seabird Colony SPAs Assessed During the Breeding and Non-breeding Season .....	68
Table 4.8:	European Sites Designated for Marine Ornithological Features Taken Forward for the Assessment of LSE – Breeding Seabird Colony SPAs Assessed During Non-Breeding Season Only .....	84
Table 4.9:	European Sites Designated for Marine Ornithological Features Taken Forward for the Assessment of LSE – Marine SPAs .....	87
Table 4.10:	European Sites Designated for Marine Ornithological Features Taken Forward for the Assessment of LSE – Migratory Seabird SPAs.....	87
Table 4.11:	European Sites Designated for Onshore Ornithological Features Taken Forward for the Assessment of LSE .....	94
Table 5.1:	SACs and Relevant Qualifying Features to be Taken Forward for Assessment of LSE for Annex II Diadromous Fish and Shellfish Features.....	103
Table 5.2:	Pathways for LSE: Potential Impacts on Annex II Diadromous Fish Features and Freshwater Pearl Mussel .....	105
Table 5.3:	LSE Matrix for SACs with Annex II Diadromous Fish and Freshwater Pearl Mussel Features .....	112
Table 5.4:	SACs and Relevant Qualifying Features to be Taken Forward for Assessment of LSE for Annex II Marine Mammal Features.....	116
Table 5.5:	Pathways for LSE: Potential Impacts on Annex II Marine Mammal Features .....	118
Table 5.6:	LSE Matrix for UK SACs with Seal Qualifying Features .....	129
Table 5.7:	LSE Matrix for UK SACs with Cetacean Qualifying Features within 300 km of the Proposed Development with Annex II Marine Mammal Features .....	132

Table 5.8: SACs and Relevant Qualifying Features to be Taken Forward for Assessment of LSE for Annex II Species (Onshore) .....	136
Table 5.9: Pathways for LSE: Potential Impacts on Annex II Otter Features .....	137
Table 5.10: LSE Matrix for UK SACs with Annex II Species (Onshore) Qualifying Features ....	139
Table 5.11 SPAs and Ramsar Sites and Relevant Qualifying Features to be Taken Forward for Assessment of LSE for Marine Ornithological Features .....	140
Table 5.12: Pathways for LSE: Potential Impacts on Marine Ornithological Features .....	150
Table 5.13: LSE Matrix for SPAs/Ramsar Sites with Marine Ornithological Features.....	155
Table 5.14 SPAs/Ramsar Sites and Relevant Qualifying Features to be Taken Forward for Assessment of LSE for Onshore Ornithological Features .....	190
Table 5.15: Pathways for LSE: Potential Impacts on Onshore Ornithological Features .....	194
Table 5.16: LSE Matrix for SPAs/Ramsar Sites with Onshore Ornithological Features .....	196
Table 7.1: Summary of the European Sites and Relevant Qualifying Features (Annex II Diadromous Fish and Annex II Marine Mammals) for which Potential LSEs have been Identified and Further Assessment in the RIAA is Required .....	206
Table 7.2: Summary of the European Sites and Relevant Qualifying Features (Ornithology) for Which Potential LSEs Have Been Identified and Further Assessment in the RIAA is Required .....	214

## List of Figures

Figure 1.1: Proposed Development Scoping Boundary .....	5
Figure 2.1: Stages in the HRA Process (Adapted from European Commission (2021)).....	14
Figure 4.1: Anadromous Fish Region Boundaries and Likely Migration Routes for Anadromous Fish Reaching UK Rivers (ABPmer, 2014) .....	31
Figure 4.2: Dominant Directions of Travel for Atlantic Salmon (One Sea Winter and Multi Sea Winter) in Scottish Coastal Waters Based on Tagging Studies (Source: Malcolm <i>et al.</i> , 2010) .....	32
Figure 4.3: European Sites Designated for Annex II Diadromous Fish and Shellfish Species to Be Considered in the LSE Screening.....	37
Figure 4.4: European Sites Designated for Annex II Marine Mammals to be Taken Forward for Assessment of LSE .....	45
Figure 4.5: European Sites Designated for Annex II Species (Onshore) to be Taken Forward for Assessment of LSE .....	49
Figure 4.6: European Sites Designated for Marine Ornithology Features to be Taken Forward for Assessment of LSE .....	91
Figure 4.7: European Sites Designated for Onshore Ornithology Features to be Taken Forward for Assessment of LSE .....	101

## Executive Summary

The Proposed Development is an estimated 1 GW Offshore Wind Farm. The proposed Array Area is located 22 km offshore from the Orkney Islands and the proposed Export Cable Corridor makes Landfall at Sinclair's Bay, Caithness. The Proposed Development is the subject of this Habitats Regulations Appraisal (HRA) Stage 1 Likely Significant Effects (LSE) Screening Report which will consider the potential impacts of all components of the Proposed Development in all phases.

This HRA Stage 1 LSE Screening Report has been produced to inform the HRA for the Proposed Development. The scope of this document covers all relevant European sites (Special Areas of Conservation (SAC), Special Protection Areas (SPA) (including candidate and proposed sites) and Ramsar sites) and relevant qualifying features seaward of Mean High Water Springs.

The initial identification of European sites and features used three criteria to determine if there was potential for direct or indirect impacts from the Proposed Development. This approach takes account of the location of the designated sites (including Ramsar sites) in relation to the Proposed Development, the anticipated Zone of Influence of potential impacts associated with the Proposed Development, and the ecology and distribution of qualifying features. This approach identified no European sites with Annex I habitats, nine sites with Annex II diadromous fish and shellfish features, 16 sites with Annex II marine mammal features, one site for Annex II species (onshore), 80 sites with marine ornithology features and 16 sites with onshore ornithology features to be taken forward for assessment of LSE.

The assessment of LSE considers a list of potential impacts and effects that may result from activities associated with the Proposed Development.

The list of potential impacts has also been informed by:

- Section 10: Fish and Shellfish Ecology of the Offshore Scoping Report;
- Section 11: Marine Mammals of the Offshore Scoping Report;
- Section 12: Ornithology of the Offshore Scoping Report.

The results of the assessment of LSE identified a total of 121 sites (9 for Annex II diadromous fish and shellfish, 16 for Annex II marine mammals, 80 for marine ornithology and 16 for onshore ornithology) to be taken forward for consideration in the Report to Inform Appropriate Assessment.

## Glossary

Defined term	Definition
Applicant (the)	Ayre Offshore Wind Farm Limited (AOWFL).
Appropriate Assessment (AA)	An assessment to determine the implications of a plan or project on a European site in view of that site's conservation objectives. An Appropriate Assessment forms part of the Habitats Regulations Appraisal (HRA) and is required when a plan or project (either alone or in combination with other plans or projects) is likely to have a significant adverse effect on a European site.
Array Area	The Array Area is the area in which the Offshore Generation Assets will be located and is shown shaded in purple in Figure 1.1 of the Offshore Scoping Report.
Ayre Offshore Wind Farm Limited (AOWFL)	A Special-Purpose Vehicle (SPV) (legal entity) for the purpose of developing the Project. Ayre Offshore Wind Farm Limited will be the Applicant for the Offshore Application.
Cetacean	Aquatic mammals, including whales, dolphins, and porpoises.
Collision	The effect by which a bird may be impacted by direct collision. Birds passing through an offshore wind are at risk of colliding with the Wind Turbines (moving and stationary parts).
Cumulative effects	The effects of the Proposed Development assessed together with effects from one or more different projects on the same receptor/resource.
Diadromous fish	Fish which move between freshwater and seawater as part of their life cycle.
Digital Aerial Surveys (DAS)	A method for undertaking baseline ornithological and marine mammal data collection surveys. Usually undertaken over a period of 24 months.
Displacement	An impact that occurs when a bird is forced away from an area of habitual usage. This can be temporary (i.e. a ship moving) or permanent (i.e. the placement of offshore infrastructure).

Defined term	Definition
Dynamic cable	A section of suspended cable between the floating infrastructure and the seabed.
Effect	Term used to express the consequence of an impact, i.e. the result of change or changes on specific environmental resources or receptors. The significance of an effect is determined by correlating the magnitude of the impact with the importance, or sensitivity of the receptor or resource in accordance with defined significance criteria.
Environmental Impact Assessment (EIA)	Assessment of the potential likely significant effects of the Proposed Development on the physical, biological, and human environment during construction, Operations and Maintenance (O&M) and decommissioning.
Environmental Impact Assessment Regulations (EIA Regulations)	Terminology used in the Offshore Scoping Report to refer to three sets of regulations: <ul style="list-style-type: none"> <li>• The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017;</li> <li>• The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017; and</li> <li>• The Marine Works (Environmental Impact Assessment) Regulations 2007</li> </ul>
European Sites	This term recognises Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) which protect species and habitats shared across Europe and were originally designated under European legislation.
Exclusive Economic Zone (EEZ)	An area from the outer limit of the territorial sea up to 200 nm from the coastal baseline over which a sovereign state has rights regarding marine resources.
Export Cable Corridor	The area of seabed seaward of Mean High-Water Springs (MHWS) shaded in blue on Figure 1.1, which connects the Array Area with the Landfall Area within which the Offshore Export Cables will be installed.
Habitats Regulations	A term that refers to the collective legislation that translates the Habitats Directive into specific legal obligations in Scotland. namely: the Conservation (Natural Habitats, &c.) Regulations 1994; the



Defined term	Definition
	Conservation of Habitats and Species Regulations 2017; and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (in each case as amended).
Habitats Regulation Appraisal (HRA)	An assessment carried out under the Habitats Regulations to determine if a plan or project could adversely affect the integrity of a European site.
High Voltage Alternating Current (HVAC)	A system of power transmission and distribution that utilises alternating current at voltages typically exceeding 1000 volts, as defined by the International Electrotechnical Commission (2015). HVAC systems are designed to efficiently deliver electricity over long distances with minimal losses, leveraging transformers to modify voltage levels.
Impact	A change caused by an action that occurs during a project's lifetime.
Inter-Array Cables (IAC)	Cables which link the Wind Turbines to each other and with the Offshore Substation Platforms (OSPs).
Interconnector Cables	Cables which will connect individual OSPs to each other to provide redundancy against cable failure elsewhere.
Intertidal area	The area between MHWS and Mean Low Water Springs (MLWS).
Invasive Non-Native Species (INNS)	Non-native plants or animals that successfully establish themselves in aquatic and fringing habitats and damage natural flora and fauna.
Landfall	The area in which the Offshore Export Cables make Landfall and is also the transitional area between the Offshore Transmission Assets and the Onshore Transmission Assets. Located in the intertidal area (see definition above) at Sinclair's Bay.
Likely Significant Effects (LSE)	An effect that has the potential to occur as a result of the Proposed Development as determined by the AA.
Marine Directorate (MD)	The Marine Directorate of the Scottish Government, formerly known as Marine Scotland. The planning and licensing authority for Scotland's seas and custodian of Scotland's National Marine Plan (NMP). The Marine Directorate - Licensing and Operations Team (MD-LOT) are specifically responsible for managing Section 36 Consent and Marine Licence Applications seaward of MHWS.

Defined term	Definition
Marine Directorate – Science, Evidence, Data and Digital (MD-SEDD)	The scientific division of the Marine Directorate that provides expert scientific, economic and technical advice and services on issues relating to marine fisheries, aquaculture, marine renewable energy, and the aquatic environment and its flora and fauna.
Marine Licence	A Marine Licence permits the undertaking of different activities in the marine environment, including construction, the deposition or removal of substances or objects, and dredging. The Marine (Scotland) Act 2010 requires Marine Licences to be obtained for licensable activities taking place within Scottish Territorial Waters (MHWS to 12nm). The Marine and Coastal Access Act (MCAA) 2009 requires a Marine Licence to be obtained for licensable marine activities within the Scottish offshore region (12 nm – 200 nm).
Marine (Scotland) Act 2010	Legislation that sets a framework to manage the competing demands made on marine resources within Scottish seas.
Mean High Water Springs (MHWS)	The average tidal height throughout the year of two successive high waters during those periods of 24 hours when the range of the tide is at its greatest.
Mean Low Water Springs (MLWS)	The average tidal height throughout the year of two successive low waters during those periods of 24 hours when the range of the tide is at its greatest.
Mitigation	Measures to avoid, prevent, reduce, or control effects on the environment. See also definitions for Embedded Mitigation and Further Mitigation.
Non-statutory consultee/stakeholder	Organisations that MD-LOT may choose to engage with (if, for example, there are marine planning policy reasons to do so) who are not designated in law but are likely to have an interest in the Proposed Development.
Offshore Application	Term used to refer to the applications associated with the Proposed Development. The Applicant will apply for: <ul style="list-style-type: none"> <li>• A Section 36 Consent under the Electricity Act 1989; and</li> <li>• Marine licence(s) under Marine Scotland Act 2010 and Marine and Coastal Access Act 2009.</li> </ul>

Defined term	Definition
Offshore Environmental Impact Assessment (EIA) Report (hereafter, “Offshore EIA Report“)	Document prepared to report the findings of the EIA for the Proposed Development and produced in accordance with the EIA Regulations. An Offshore EIA will be submitted to support the Offshore Application for the Proposed Development.
Offshore Export Cable	Subsea cables used to transmit electricity generated offshore by the Wind Turbines from the OSPs to shore. The Transition Joint Bay (TJB) is the location where the Offshore Export Cable terminates, and the onshore cabling begins.
Offshore Generation Assets	The infrastructure of the Proposed Development required to generate electricity comprising of the Wind Turbines, Wind Turbine foundations and associated infrastructure e.g. IAC.
Offshore Infrastructure	All of the Offshore Infrastructure associated with the Proposed Development that is located seaward of MHWS, comprising the Offshore Generation Assets and the Offshore Transmission Assets.
Offshore Scoping Report	The Report that presents the findings of the EIA scoping process undertaken for the Proposed Development with the purpose of obtaining a Scoping Opinion. The Report defines what is intended to be assessed and reported as part of the EIA.
Offshore Substation Platform(s) (OSP(s))	OSP(s) comprise the support structure, topside and electrical components used for collecting and/or converting electricity generated by the Wind Turbines for transmission by the Offshore Export Cables.
Offshore Transmission Assets	The infrastructure of the Proposed Development required to transmit the generated electricity comprising of the OSPs, Offshore Export Cables and associated infrastructure up to MHWS.
Onshore Scoping Report	Document prepared to comply with The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 in order to provide information on the potential impacts of the Onshore Transmission Assets.
Onshore Substation	Part of an electrical transmission and distribution system. Substations transform voltage from high to low, or the reverse by means of electrical transformers.

Defined term	Definition
Onshore Transmission Assets	The transmission infrastructure associated with the Project above MLWS which will be covered by the Onshore Scoping Report and subsequent EIA Report.
Operations and Maintenance (O&M)	The phase of the Proposed Development following completion of construction. This phase of development includes routine inspections, repairs and replacement of infrastructure and equipment (including interconnector and IACs), scour protection replenishment or replacement, major component replacement, painting and/or other coating works, removal of marine growth, replacement of access ladders, and geophysical surveys.
Pathway	Describes the means or route by which a receptor (such as the coast) can be affected by an identified impact source (such as Wind Turbine foundations in the water column).
Physical processes	The collective term for the following: hydrodynamics (water levels and currents); winds and waves; stratification and frontal systems; geology and seabed sediments (including sediment transport); seabed geomorphology; and coastal geomorphology.
Piling	The action of installing piles: installation can use various methodologies, the most common of which are impact piling (in which the piles are struck by a “hammer”) and drilling (during which a hole is drilled into the seafloor, the drilling tool is removed, and the pile is slotted into that hole).
Plan Option Area (POA)	A location identified in the Sectoral Marine Plan (SMP) as a preferred area for commercial-scale offshore wind development.
Project (the)	An overarching term for the Ayre Offshore Wind Farm (Ayre OWF) comprising the offshore and onshore infrastructure required to generate and transmit electricity from the Array Area to the onshore Grid Connection Point (GCP). The Project includes both the Offshore Generation Assets, the Offshore Transmission Assets and the Onshore Transmission Assets.
Project Design Envelope (PDE)	A description of the range of possible elements that make up the design options for the Proposed Development under consideration when the exact engineering parameters are not yet known.

Defined term	Definition
Proposed Development	Term used to define the Offshore Infrastructure associated with the Project seaward of MHWS for which consent is being sought. Further details of the parameters are included in Section 3: Project Description, of the Offshore Scoping Report.
Qualifying Features	The features for which a European Site has been officially designated to protect.
Ramsar Site	Wetlands of international importance, designated under the Ramsar Convention on Wetlands of International Importance 1971.
Report to Inform Appropriate Assessment (RIAA)	The RIAA provides detailed information to support the process of Appropriate Assessment (undertaken by the competent authority) as part of the HRA, which evaluates the potential impacts of a project or plan on protected European sites.
Scoping Boundary	The boundary within which all elements of the Proposed Development will be located. The Scoping Boundary comprises of the Array Area and Export Cable Corridor which ends at MHWS. This area may be refined through future site selection work, with details presented in the Offshore EIA Report.
Scoping Workshop	A series of sessions preceding the finalisation of the Offshore Scoping Report to provide an opportunity for the Applicant to consult on the draft scope and for stakeholders to request additional information on key issues.
Scottish Ministers (the)	The decision makers with regard to Marine Licence(s) and Section 36 Consent applications in Scottish Offshore and Territorial Waters.
Scottish Offshore Waters	The area between the seaward boundary of Scottish Territorial Waters and the seaward boundary of the Scottish part of the EEZ.
Scottish Renewable Energy Zone (REZ)	An area of the sea beyond the Scottish Territorial Waters that may be utilised for renewable energy production, as specified in the Renewable Energy Zone (Designation of Area) (Scottish Ministers) Order 2005.
ScotWind Leasing Round	A seabed leasing round run by Crown Estate Scotland (CES) to grant property rights for the seabed in Scottish waters for new commercial scale offshore wind project development. ScotWind Leasing must be sited within POA of the Sectoral Marine Plan (SMP).

Defined term	Definition
Scour protection	Protective materials installed to avoid sediment being eroded away from the base of the foundations and/or buried subsea cable due to the flow of water.
Section 36 Consent	Scottish Ministers' consent under Section 36 of the Electricity Act 1989 required for the generating assets of the Proposed Development.
Sectoral Marine Plan (SMP)	A plan developed by the Scottish Government which provide the strategically planned spatial footprint for offshore wind development in Scotland.
Sectoral Marine Plan Iterative Plan Review (SMP IPR)	The iterative plan review process as new information becomes available (e.g. consented projects, environmental data, cumulative effects assessment, etc.).
Special Areas of Conservation (SAC)	SACs are areas designated for the conservation of certain plant and animal species listed in the Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.
Special Protection Areas (SPAs)	SPAs are sites that are designated to protect rare or vulnerable birds (as listed on Annex I of the Directive 2009/147/EC on the conservation of wild birds), as well as regularly occurring migratory species.
Spring Tidal Excursion	The distance suspended sediment is transported prior to being carried back on the returning tide.
Statutory Nature Conservation Body (SNCB)	A statutory adviser to the UK and Scottish Governments on Scottish, UK and international nature conservation.
Study area	For each environmental topic, the baseline environment will be characterised, and the potential environmental impacts will be described within a topic-specific study area. Specific study areas are defined for each topic and are based on the maximum spatial extent across which potential impacts of the Project may be experienced by the relevant receptors (i.e. Zone of Influence).
Subsea Collector	Provides a connection point for a number of dynamic cables from Wind Turbines to an OSP via a fixed cable.

Defined term	Definition
Subsea noise	Noise which propagates underwater.
Subtidal	Areas of the coastal marine environment that lie below the level of MLWS and are continuously submerged by seawater.
Thistle Wind Partners (TWP)	The Joint Venture (JV) of DEME Group, Qair, and Aspiravi as the energy companies that have partnered to develop the Proposed Development.
Wind Turbines	Structures comprising of a tubular tower, rotor blades, and a nacelle which houses the Wind Turbine generator.

## Abbreviations

Acronym	Definition
AA	Appropriate Assessment
BDMPS	Biologically Defined Minimum Population Scales
CEA	Cumulative Effects Assessment
CES	Crown Estate Scotland
CRM	Collision Risk Modelling
cSAC	Candidate Special Area of Conservation
DAS	Digital Aerial Survey
EC	European Commission
EIA	Environmental Impact Assessment
EMF	Electromagnetic Fields
EMP	Environmental Management Plan
EPS	European Protected Species
EU	European Union
FCS	Favourable Conservation Status
HRA	Habitats Regulations Appraisal
HVAC	High Voltage Alternating Current
IAC	Inter-Array Cable
IAMMWG	Inter Agency Marine Mammal Working Group
INNS	Invasive Non-Native Species
INNSMP	Invasive Non-Native Species Management Plan
LSE	Likely Significant Effects
MCAA	Marine and Coastal Access Act
MD-LOT	Marine Directorate – Licensing Operations Team
MD-SEDD	Marine Directorate Science, Evidence, Digital and Data



Acronym	Definition
MHWS	Mean High Water Spring
MLWS	Mean Low Water Spring
MMO	Marine Management Organisation
MU	Management Unit
O&M	Operation and Maintenance
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
PDE	Project Design Envelope
POA	Plan Option Area
pSAC	Proposed Special Area of Conservation
pSPA	Proposed Special Protection Area
RIAA	Report to Inform Appropriate Assessment
SAC	Special Area of Conservation
SCs	Subsea Collectors
SCANS	Small Cetaceans in European Atlantic Waters of the North Sea
SCI	Site of Community Importance
SCOS	Special Committee on Seals
SMP	Sectoral Marine Plan
SMP IPR	Sectoral Marine Plan Iterative Plan Review
SMP-OWE	Sectoral Marine Plan for Offshore Wind
SPA	Special Protection Area
SPV	Special Purpose Vehicle
SSC	Suspended Sediment Concentration
TWP	Thistle Wind Partners Limited
UK	United Kingdom

Acronym	Definition
UN	United Nations
UXO	Unexploded Ordnance
ZoI	Zone of Influence

## Units

Units	Definition
GW	GigaWatt
kHz	Kilohertz
km	Kilometre
km <sup>2</sup>	Square kilometre
m	Metre
nm	Nautical mile
%	Percentage

# 1 Introduction

## 1.1 Overview

- 1.1.1 Under the ScotWind leasing round, in April 2022, on entering into an Option Lease agreement with Crown Estate Scotland (CES), Thistle Wind Partners Limited (TWP) secured the rights to develop a commercial scale Offshore Wind Farm (OWF) in the NE2 Plan Option Area (POA) as defined in the Scottish Government's Sectoral Marine Plan (SMP) for Offshore Wind (Scottish Government, 2020).
- 1.1.2 Ayre Offshore Wind Farm Limited (hereafter referred to as the Applicant), is the Special Purpose Vehicle (SPV, legal entity) for the purpose of developing the Ayre OWF.
- 1.1.3 The offshore and onshore elements of the Ayre Offshore Wind Farm are collectively known as the Project; an estimated 1 GW OWF with the Array Area located approximately 22 km off the Orkney coast, at the closest point of the Scoping Boundary. The Export Cable Corridor extends from the Array Area and makes Landfall at Sinclair's Bay, Caithness. To construct and operate the Project, the Applicant is working to obtain the necessary consents and licences.
- 1.1.4 The Applicant is applying for separate consents for the onshore and offshore assets of the Project. The Offshore Infrastructure, which is the subject of this Habitats Regulations Appraisal (HRA) Stage 1 Likely Significant Effects (LSE) Screening Report, include assets seaward of Mean High Water Springs (MHWS), and is hereafter referred to as the Proposed Development, shown in Figure 1.1. This includes Wind Turbines and Offshore Substation Platforms (OSPs), and their associated foundations, along with Inter-Array Cables (IACs), interconnector, Subsea Collectors, and Offshore Export Cables.
- 1.1.5 The Applicant is seeking the following permissions, licences and consents for the Proposed Development, supported by environmental impact assessment:
- Section 36 Consent under the Electricity Act 1989 for the Offshore Generation Assets;
  - Marine Licence covering the Offshore Generation Assets;
  - Marine Licence covering the Offshore Transmission Assets;
  - Safety zone declarations during construction and operation under the Energy Act 2004; and
  - Decommissioning scheme under the Energy Act 2004.
- 1.1.6 The Onshore Transmission Assets landward of Mean Low Water Springs (MLWS), will be subject to a separate onshore HRA Stage 1 LSE Screening Report, which will be submitted to The Highland Council and will not be discussed further within this Stage 1 LSE Screening Report. The Onshore Scoping Report (planning reference 24/00243/SCOP) was submitted to The Highland Council in

January 2024 and a Scoping Opinion was received on 28 February 2024.

## 1.2 Habitats Regulations Appraisal

- 1.2.1 This Stage 1 LSE Screening Report has been produced to inform the HRA for the Proposed Development. It provides information to enable the screening of the Proposed Development with respect to its potential to have a LSE on European or Ramsar sites. Where no LSE from the Proposed Development is predicted, European sites are proposed to be screened out for further assessment. Where LSE cannot be ruled out at this stage, European sites are screened in for further consideration in the Stage 2 Appropriate Assessment (AA).
- 1.2.2 The requirement for the consideration of potential impacts of the Proposed Development upon European sites is derived from the European Union's (EU's) Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ L 206/7 22.7.1992) hereafter referred to as 'the Habitats Directive'. In terrestrial areas of Scotland and territorial waters out to 12 nm, the land and marine aspects of the Habitats Directive and certain elements of the Wild Birds Directive (Directive 2009/147/EC) are transposed into domestic law by The Conservation (Natural Habitats, & C.) Regulations 1994 (as amended) and by The Conservation of Habitats and Species Regulations 2017 (which applies to certain consent decisions including an application for Section 36 consent under the Electricity Act 1989). In waters beyond 12 nm, The Conservation of Offshore Marine Habitats and Species Regulations 2017 apply. These regulations are collectively referred to as the Habitats Regulations.
- 1.2.3 Following the United Kingdom's (UK's) departure from the EU on 31 December 2020 (EU Exit), the UK is no longer an EU Member State. Notwithstanding, the EU Habitats Directive, as implemented by the Habitats Regulations, continues to provide the legislative backdrop for HRA. The changes implemented by The Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019 have implemented only minor changes to the HRA regime. These changes are considered to have no material implications on the requirement or process for a HRA for the Proposed Development.
- 1.2.4 Under the Habitats Regulations, an HRA must be carried out for all plans and projects that are likely to have significant effects on European sites. As per the Habitats Regulations, these sites include Special Areas of Conservation (SACs), candidate SACs (cSACs), Sites of Community Importance (SCIs) and Special Protection Areas (SPAs). As a matter of Scottish Government policy, European sites also include proposed SACs (pSACs), proposed SPAs (pSPAs), and Ramsar Sites (i.e. listed under the Ramsar Convention on Wetlands of International Importance (United Nations (UN), 2014).

- 1.2.5 In this Stage 1 LSE Screening Report, and in accordance with the Scottish Government’s EU Exit guidance, the term ‘European site’ has been retained to refer to the above sites protected in Scotland, the rest of the UK and in EU Member States (Scottish Government, 2020). However, where these sites are located in the UK, they no longer form part of the EU’s Natura 2000 ecological network and now form part of the National Site Network.
- 1.2.6 The European Commission’s (EC’s) (2021) guidance ‘Commission Notice. Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC’ identifies a staged process to the assessment of plans and projects on European sites:
- Stage 1: Screening;
  - Stage 2: The AA; and
  - Stage 3: Derogation from Article 6(3) under certain conditions.

### 1.3 Purpose of this Report

- 1.3.1 This document provides the Applicant’s Stage 1 LSE Screening under the Habitats Regulations for the Proposed Development (as described in Section 3). It comprises the screening stage (see Figure 2.1) and, therefore, provides information to enable the screening of the Proposed Development with respect to its potential to have an LSE on European sites. This Stage 1 LSE Screening Report has been developed alongside the Offshore Scoping Report, submitted to Marine Directorate Licensing Operations Team on the 17 June 2024.
- 1.3.2 The screening exercise presented in this report is based on the current understanding of the baseline environment and proposed activities associated with the Proposed Development as summarised in Section 1.5 and Section 3: Project Description of the Offshore Scoping Report, as well as site-specific information currently available for each receptor group. Changes that may arise as a result of further site-specific surveys, environmental assessment, consultation, and/or refinements to the Project Design Envelope (PDE) will be reflected in the Report to Inform Appropriate Assessment (RIAA).

### 1.4 Structure of this Report

- 1.4.1 The structure of this Stage 1 LSE Screening Report is as follows:
- Section 2 – a summary of the HRA process and legislative framework including implications of the UK’s departure from the EU;
  - Section 3 – description of the key elements of the Proposed Development;

- Section 4 – the initial identification of European sites and features which have the potential to be affected by the Proposed Development;
- Section 5– assessment of the potential for LSEs to arise with regard to the designated features of the European sites under consideration;
- Section 6 – a summary of the approach to the in-combination assessment; and
- Section 7 – a summary of the European sites and features for which the screening process has identified potential for LSEs.

## 1.5 Project Overview

### Project Assets

1.5.1 The Proposed Development includes the following offshore infrastructure components:

- Wind Turbines;
- Wind Turbine foundations (floating, including associated moorings and anchoring systems, and fixed bottom);
- Offshore Substation platforms (OSPs);
- OSP foundations (fixed bottom);
- Offshore cables (Inter-Array Cables (IAC), interconnector cables, and Offshore Export Cables);
- Subsea Collectors (SC); and
- Scour protection, cable protection and utility crossings.

1.5.2 A detailed project description is provided in Section 3: Project Description. It is anticipated that construction may commence from 2029, with this phase lasting for up to five years.

### Project Scoping Boundary

1.5.3 The Proposed Development will be located within the Scoping Boundary which encompasses the Array Area and Export Cable Corridor, as illustrated in Figure 1.1. The Array Area covers an area of 200 km<sup>2</sup> of seabed and is located approximately 22 km from the coast of Orkney at the closest point of the Scoping Boundary.

Ayre Offshore Wind Farm Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report

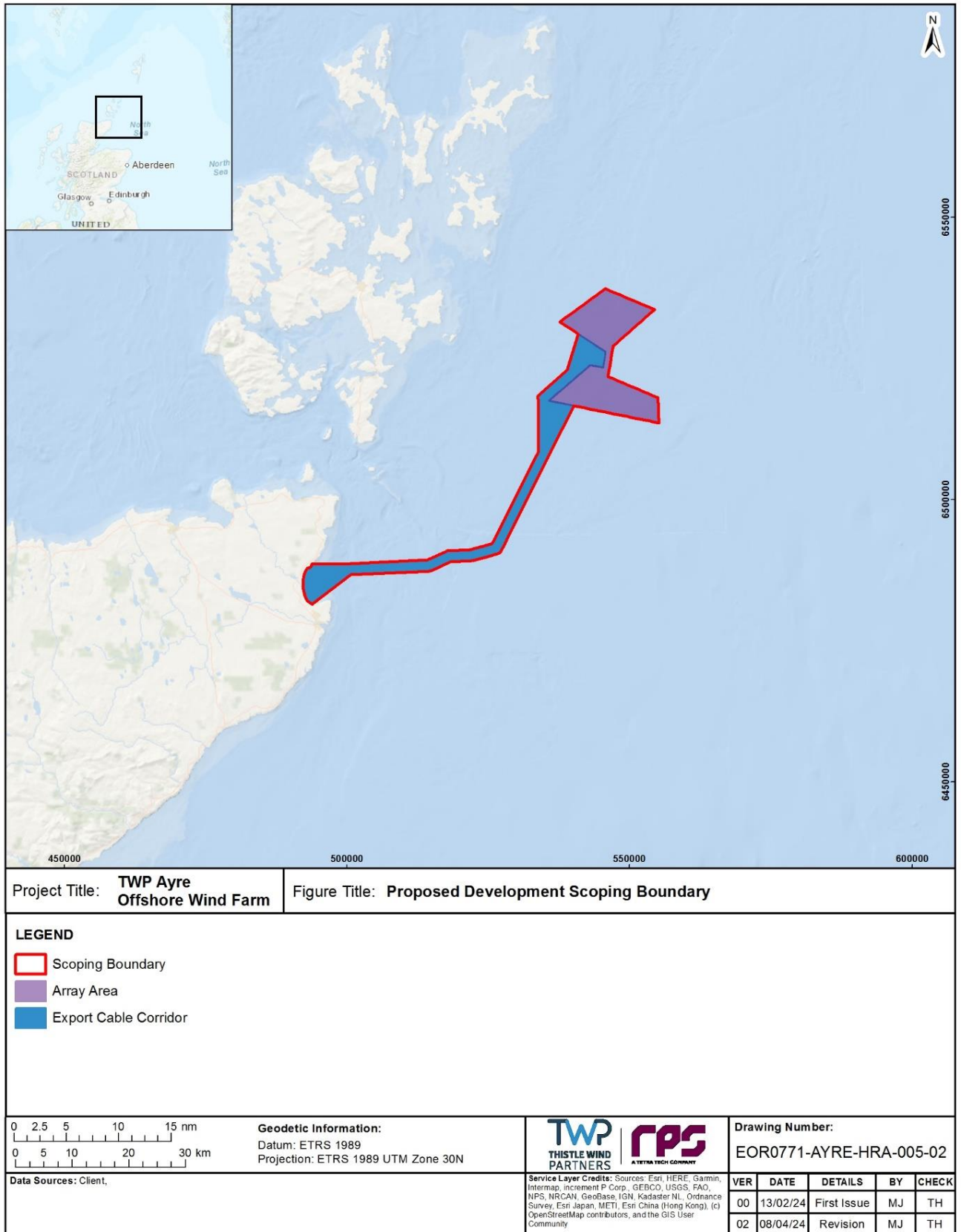


Figure 1.1: Proposed Development Scoping Boundary

## 1.6 Relevant Consultations

- 1.6.1 Table 1.1 provides an overview of consultation undertaken to date that is relevant to this Stage 1 LSE Screening Report.



**Table 1.1: Summary of Consultation Undertaken to Date which is of Relevance to the Stage 1 LSE Screening**

Date	Consultee (s)	Type of consultation	Summary of consultation	Where and how this is addressed
<b>Annex I habitats</b>				
March 2024	NatureScot, Marine Directorate – Licensing Operations Team (MD-LOT) and Marine Directorate Science, Evidence, Digital and Data (MD-SEDD)	Scoping Workshop	<p>The results of the Stage 1 LSE Screening Report for European sites with Annex I habitat qualifying features was presented.</p> <p>NatureScot agreed there are no European sites with Annex I habitats that are required to be taken forward for assessment of LSE.</p>	The agreement is noted, and no further action is required.
<b>Annex II diadromous fish</b>				
March 2024	NatureScot, MD-LOT and MD-SEDD	Scoping Workshop	<p>The results of the Stage 1 LSE Screening Report for European sites with Annex II diadromous fish qualifying features was presented. It was proposed that nine sites with Annex II diadromous fish qualifying features be taken forward for consideration in the RIAA for two impact pathways (the impact subsea noise and Electromagnetic Fields (EMF) on fish and shellfish).</p> <p>NatureScot advised that a formal response would be provided in writing to confirm if they agree with the sites,</p>	NatureScot’s formal response was received in April 2024.

Date	Consultee (s)	Type of consultation	Summary of consultation	Where and how this is addressed
			features and impact pathways proposed to be screened in for LSE.	
April 2024	NatureScot	Post-Scoping Workshop Written Response	NatureScot advised that for diadromous fish species there is limited knowledge of distribution and behaviour of these species in the marine environment. They advised, based on evidence currently available, it is not possible for us to carry out an assessment of diadromous fish to the level required under HRA. Therefore, NatureScot advised that diadromous fish species should be assessed through EIA only and not through HRA.	The Applicant does not consider that the uncertainty in distribution and behaviour are reasons to screen all diadromous fish out, or that this rationale would be compliant with the Habitats Regulations. Diadromous fish are, therefore, included within the assessment.
<b>Annex II marine mammals</b>				
March 2024	NatureScot, MD-LOT and MD-SEDD	Scoping Workshop	The results of the Stage 1 LSE Screening Report for European sites with Annex II marine mammals qualifying features was presented. NatureScot advised that European sites with harbour seal as a qualifying feature which are located more than 50 km from the Proposed Development could be screened out. European sites with grey seal as a qualifying feature which are located more than 20 km from the Proposed Development could be screened out if	In the absence of a telemetry study at this stage, a precautionary approach has been adopted which screens in all sites within the Zones of Influence (ZOIs) outlined in Section 4.4. This will, however, be revisited, prior to undertaking the RIAA, once the telemetry data for the Proposed Development have been

Date	Consultee (s)	Type of consultation	Summary of consultation	Where and how this is addressed
			<p>it can be demonstrated that there is no evidence of connectivity with the Proposed Development.</p>	<p>reviewed, to establish if there is connectivity with European sites for grey seal and harbour seal beyond 20 km and 50 km, respectively.</p>
			<p>NatureScot advised that the Stage 1 Screening should align with the marine mammal Section of the Offshore Scoping Report and consider indirect effects from changes to prey species.</p>	<p>The impact of effects on marine mammals due to changes in prey availability has been screened in for the construction phase for all the relevant marine mammal SACs (Table 7.1).</p>
<p>Annex II species (onshore)</p>				
<p>April 2024</p>	<p>NatureScot</p>	<p>Post-Scoping Workshop Written Response</p>	<p>The Scoping Workshop presented a criteria to be used for the initial identification of sites designated for Annex II terrestrial species which have the potential to be affected by offshore elements of the Project. A 10 km buffer is used to define the Zol for bats and otters. NatureScot do not support the 10 km buffer approach. The rationale for using a 10 km Zol for otter was not outlined within the workshop slides or minutes. NatureScot highlighted that the proposed Export Cable Corridor for the</p>	<p>The rationale behind the 10 km buffer approach for otters has been provided in Section 4.5. Consideration of the Caithness and Sutherland Peatland SAC for otter is presented in the site screening and LSE assessment (Section 4.5 and 5.5).</p>

Date	Consultee (s)	Type of consultation	Summary of consultation	Where and how this is addressed
			<p>Proposed Development makes Landfall at Sinclair’s Bay which lies approximately 4.5 km from the Caithness and Sutherland Peatland SAC and includes otters as a designated feature. Therefore, NatureScot advised that potential impacts to otters in the nearshore area and at the coast should be considered as part of the HRA.</p>	
			<p>NatureScot agreed that bats do not require further consideration under the HRA.</p>	<p>The agreement is noted, and no further action is required.</p>
Ornithology				
March 2024	NatureScot, MD-LOT and MD-SEDD	Scoping Workshop	<p>The results of the Stage 1 LSE Screening Report for European sites with ornithology qualifying features was presented.</p> <p>The consultees were asked about the inclusion of migratory waterbird SPAs and how to screen this appropriately without having to screen all throughout the UK. NatureScot will provide a written response to this question.</p>	<p>NatureScot advised the use of “<i>Strategic study of collision risk for birds on migration and further development of the stochastic collision risk modelling tool Work Package 1: Strategic review of birds on migration in Scottish waters</i>” (Woodward et al., 2023)</p>
			<p>Use of site-specific foraging ranges through tagging studies was discussed. Specific example for Buchan Ness to</p>	<p>NatureScot acknowledge the tracking studies undertaken for kittiwake at</p>

Date	Consultee (s)	Type of consultation	Summary of consultation	Where and how this is addressed
			<p>Collieston Coast SPA was provided which indicated a much reduced mean-max foraging range than the generic guidance (Woodward <i>et al.</i>, 2019). NatureScot will provide a written response to this question.</p>	<p>Buchan Ness to Collieston Coast SPA, but at this stage do not consider there is sufficient evidence to change advice regarding the use of Woodward <i>et al.</i> (2019) foraging ranges.</p>

## 2 Habitats Regulations Process

### 2.1 Legislation context

- 2.1.1 The Habitats Directive, together with the Directive 2009/147/EC of the European Parliament and the Council of 30 November 2009 on the conservation of wild birds hereafter referred to as the ‘Birds Directive’, provide the EU’s legal framework for the protection of wild fauna and flora and establishes a network of internationally important sites, designated for their ecological status.
- 2.1.2 The UK is no longer an EU Member State; however, the Habitats Directive (and transposing Habitats Regulations, as described in Section 1.2), continue to provide the legislative backdrop for HRA in the UK through the Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019. The HRA process implemented under the Habitats Regulations continues to apply (subject to minor changes effected by the Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019) and the UK is bound by HRA judgments handed down by The Court of Justice of the EU prior to 31 December 2020. This document has therefore been drafted on the basis that all relevant HRA-related legislation remains in place and in accordance with Habitats Regulations that transposed the European requirements for HRA into UK law (Section 1.2) and as effected by the Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019.
- 2.1.3 The objective of the Habitats Regulations is to conserve, at a Favourable Conservation Status (FCS), those habitats and species listed in Annexes I and II of the Habitats Directive and Annex I of the Birds Directive. Post EU Exit, the Habitats Regulations continue to refer to Annexes I and II of the Habitats Directive and Annex I of the Birds Directive and as such, reference is made to the annexes of the Habitats and Birds Directives in this report.

### 2.2 European Sites Post EU Exit – the National Site Network

- 2.2.1 Following EU Exit, European sites located within the UK are no longer part of the Natura 2000 network (nor known as Natura sites) but instead combine to form the UK’s ‘National Site Network’. The National Site Network consists of European sites in the UK that were already designated (i.e. they were established under the Habitats Directive) on 31 December 2020 or were proposed to the EC before that date. It also includes any new sites that were designated under the Habitats Regulations through an amended designation process.
- 2.2.2 Management objectives for the National Site Network are established in the EU Exit Regulations and are referred to as the network

objectives. The objectives in relation to the National Site Network are to:

- maintain or restore certain habitats and species listed in the Habitats Directive to FCS; and
- contribute to ensuring the survival and reproduction of certain species of wild bird in their area of distribution and to maintaining their populations at levels which correspond to ecological, scientific, and cultural requirements, while taking account of economic and recreational requirements.

## 2.3 The HRA Process

2.3.1 HRA is generally recognised as a progressive, staged process built around the wording of Article 6(3) of the Habitats Directive (as transposed by the Habitats Regulations), with the outcome at each stage defining the requirement for, and scope of, the next. Compliance with the requirements of the HRA Regulations can be demonstrated if the stages are followed in the correct and particular sequence. These stages are summarised in Figure 2.1.

2.3.2 Article 6(3) of the Habitats Directive requires that:

*‘Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and if appropriate, after having obtained the opinion of the general public.’*

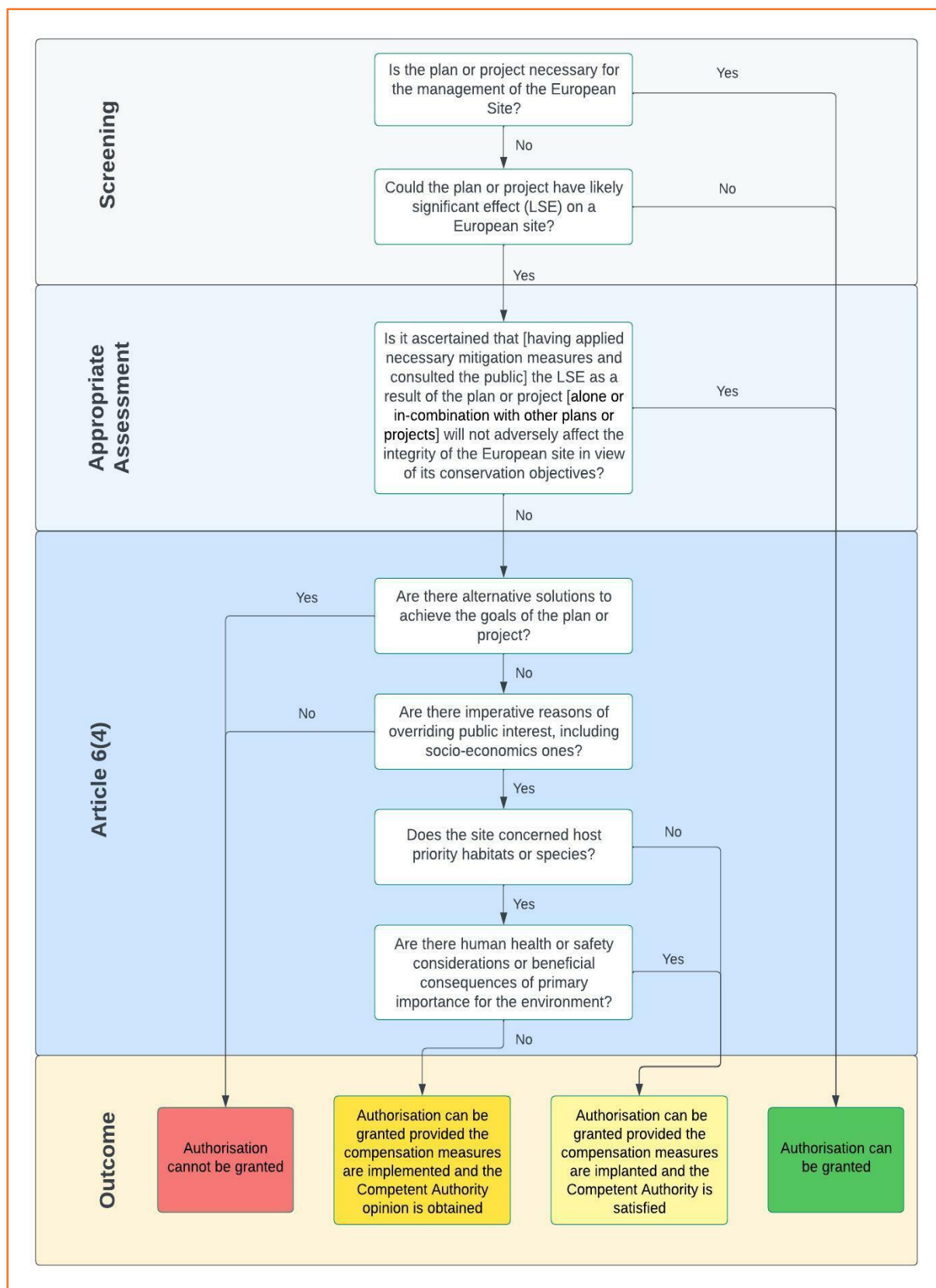


Figure 2.1: Stages in the HRA Process (Adapted from European Commission (2021))



2.3.3 The Defra *et al.* (2021) guidance ‘Habitats Regulations Assessments: protecting a European site’ describes that the process can have up to three stages as outlined below:

- 1) Screening – the first stage involves a screening for LSE which is a simple assessment to check or screen if a plan or project:
  - is directly connected with or necessary for the conservation management of a European site; and
  - risks having a significant effect on a European site on its own or in-combination with other plans or projects.
- 2) AA – the second stage is an AA, which must be carried out if it is decided that there is a risk of an LSE on a European site or if there is not enough evidence to rule out a risk. The AA should assess the LSE of the plan or project on the integrity of the site and its conservation objectives and consider ways to avoid or reduce (mitigate) any potential for an ‘adverse effect on the integrity of the site’, known as the ‘integrity test’.
- 3) Derogations - the third stage is known as a derogation where, in certain circumstances, a plan or project that has failed the integrity test may be approved. To decide if the plan or project qualifies for a derogation, three legal tests must be applied. All three tests must be passed in sequence for a derogation to be granted:
  - there are no feasible alternative solutions that would be less damaging or avoid damage to the site;
  - the plan or project needs to be carried out for Imperative Reasons of Overriding Public Interest; and
  - the necessary compensatory measures can be secured.

2.3.4 This report considers the first ‘screening for LSE’ step in the HRA process which encompasses the ‘screening’ stage shown in Figure 2.1.

2.3.5 The Habitats Regulations make it clear that the applicant for the consent for the plan or project must provide such information as the Competent Authority may reasonably require for the purposes of the assessment. It is intended that this report and the subsequent HRA reporting, including the RIAA, provides this information.

2.3.6 To determine whether an AA is required, it must first be ascertained whether or not the plan/project is directly connected with or necessary to the management of the European site. As this is not the case for the Proposed Development, it must, therefore, be determined whether the project, either alone or in-combination with other plans and projects, is likely to have a significant effect on a European site(s). This constitutes the LSE Screening stage, which removes from the assessment protected features of European sites that have no connectivity to the Proposed Development or those where the impacts are immaterial or inconsequential and the

conservation objectives for the site's qualifying features would not be undermined (i.e. they are non-significant). All other European sites, including those where there is reasonable doubt as to the magnitude and nature of the relevant impact(s), are passed through to the next stage (AA).

## 2.4 Offshore Wind Energy Draft Sectoral Marine Plan: Habitats Regulations Appraisal

- 2.4.1 The Scottish Government produced a SMP for Offshore Wind Energy (SMP-OWE (Scottish Government, 2020) (hereafter, referred to as ‘the Plan’), as part of Scotland’s commitment to long-term decarbonisation of the energy sector.
- 2.4.2 The Plan was adopted in October 2020 and identified 15 POAs for offshore wind development in Scotland and constituted the basis for CES’s ScotWind seabed leasing round. The Plan was developed in combination with a HRA, in order to assess the Plan’s potential effects on European sites. This Plan-level HRA was undertaken as a sequence of discrete stages.
- 2.4.3 The Plan-level HRA included a pre-screening stage, which identified an initial list of 652 European sites and their qualifying features, for which there could be LSE. A 100 km buffer around the POAs was used to identify these European sites. The main screening process identified a total of 468 European sites consisting of the following:
- 267 SACs (including cSACs and SCIs);
  - 150 SPAs (including pSPAs); and
  - 51 Ramsar Sites (Scottish Government, 2019).
- 2.4.4 Of these 468 sites, 107 were non-UK sites screened in due to the presence of mobile features (e.g. cetaceans and/or birds) with ranges that regularly exceeded 100 km.
- 2.4.5 Overall, it was concluded that the plan would not lead to adverse effects on the integrity of European sites, either alone or in-combination with other plans and projects, provided that the project-level HRAs are conducted, an iterative plan review is undertaken and that a temporal moratorium on development within certain areas (E3 and NE2-NE6) is applied.
- 2.4.6 It is noted that the Scottish Government is currently revisiting the Plan-level HRA as part of its SMP Iterative Plan Review (SMP IPR). However, as the SMP IPR plan-level HRA is currently not in the public domain, this Stage 1 LSE Screening Report builds on the conclusions of the previous Plan-level HRA and in light of more recent developments on the nature, scale, and location of the Proposed Development.

## 2.5 Process for Identifying European Sites and Relevant Qualifying Features

- 2.5.1 To facilitate the identification of the European sites and features to be considered in this Stage 1 LSE Screening Report for the Proposed Development, a pre-screening of sites has been undertaken. This is considered to be appropriate due to the spatial scale of the Proposed Development and the wide-ranging nature of many of the qualifying features of European sites which may be affected (i.e. birds and marine mammals) and as such the number of European sites which could potentially be affected.
- 2.5.2 The criteria adopted for the initial identification of European sites are outlined in Table 2.1. This approach takes account of the location of the European sites (including Ramsar sites) in relation to the Proposed Development, the anticipated Zol of potential impacts associated with the Proposed Development, and the ecology and distribution of qualifying features. Table 2.1 outlines the order of consideration given to the criteria used for the identification of the list of sites to be taken forward for assessment of LSE. Pre-screening Criterion 1 considers whether there is a physical overlap between the Proposed Development and any European sites; all sites with an overlapping boundary are screened in to be taken forward for assessment of LSE.
- 2.5.3 Pre-screening Criterion 2 identifies any European sites, not already screened in using Criterion 1, where there is an overlap between the Proposed Development and the range of any qualifying mobile species of the site. All sites where the Proposed Development overlaps with the range of one (or more) of its qualifying features, are taken forward for assessment of LSE.
- 2.5.4 Criterion 3 identifies any European sites, not already screened in by Criterion 1 or 2, where the potential Zol of the Proposed Development (Section 3) overlaps with a European site and/or qualifying features of the site. For ornithology receptors, consideration is also given to a range of factors that inform the likely extent to which the different qualifying features will occur at the Proposed Development.

**Table 2.1: Criteria for Initial Identification of Relevant European Sites**

Order of consideration	Criteria used for initial identification of relevant European sites
1	The Proposed Development overlaps with a European or Ramsar site(s).
2	European or Ramsar site with qualifying mobile features/species (e.g. Annex I birds, Annex II marine mammals, migratory fish, otter) whose range (e.g. foraging,

Order of consideration	Criteria used for initial identification of relevant European sites
	migratory, overwintering, breeding or natural habitat range) overlaps with Proposed Development.
3	European or Ramsar sites and/or qualifying features located within the potential Zol of impacts associated with the Proposed Development (e.g. habitat loss/disturbance, sound and risk of collision).

2.5.5 This initial screening identifies sites which can be excluded from further consideration in this report as there is no potential for LSEs due to lack of potential overlap/receptor-impact pathway as defined by the criteria in Table 2.1. Sites identified as having a potential for LSEs due to a potential overlap/receptor-impact pathway as defined by the criteria in Table 2.1 are taken forward for assessment of LSE in Section 5.

2.5.6 It should be noted that the LSE Screening may be updated, as appropriate, during the pre-application phase of the Proposed Development to account for site-specific survey data, detailed assessments and stakeholder feedback which may result in some features or sites being excluded from consideration in the AA, due to a lack of LSE.

## 3 Project Description

### 3.1 Introduction

- 3.1.1 This section provides a summary of the Offshore Infrastructure and describes activities associated with the construction, Operation and Maintenance (O&M), and decommissioning of the Proposed Development. This section is based upon design information provided in Section 3: Project Description of the Offshore Scoping Report (TWP-AYR-RPS-OFC-RPT-00031, application reference SCOP-0049).
- 3.1.2 The PDE approach will be adopted for the RIAA and Offshore EIA Report, in accordance with current good practice and the “Rochdale Envelope Principle”. The PDE concept allows for some flexibility in project design, particularly for the number of Wind Turbines and the foundation types, where the full details of the project design are not finalised at application submission.

### 3.2 Offshore Generation Assets

- 3.2.1 The Offshore Generation Assets comprise:
- up to 67 Wind Turbines (each comprised of three rotor blades, a nacelle housing the generating unit, hub, and tower section) and associated supporting structures which may be fixed and/or floating foundations including mooring and anchoring systems;
  - a network of up to 185 km of IACs which may be either static or dynamic cables depending on the Wind Turbine foundations used;
  - up to 60 km of Interconnector Cables;
  - up to 20 SCs; and
  - scour and cable protection.

#### Wind Turbines, Foundations and Support Structures

- 3.2.2 The Proposed Development will include up to 67 Wind Turbines located in the Array Area, with the final number and layout to be determined based on the generating capacity of the individual Wind Turbines along with the results of impact assessments, environmental and engineering surveys, turbine type availability, and design and engineering activities. If a model of Wind Turbine with a higher capacity output is selected for the final design, fewer Wind Turbines may be required. The final type, number, and layout of the Wind Turbines will be confirmed at the detailed design stage (post-consent).

- 3.2.3 The PDE presently incorporates options for both floating and / or fixed Wind Turbine foundations, with final design and foundation options to be refined throughout the designed and EIA process. Therefore, the PDE will include design parameters for both floating foundations and fixed foundations, as well as their respective support structures.
- 3.2.4 There are a number of floating foundation options currently being considered, however the two preferred options are semi-submersible and tension leg platforms. Piled and/or drilled jacket foundations (three or four legs) and suction bucket jacket foundations (three legs) are currently considered as the fixed foundation options.
- 3.2.5 Should the Wind Turbine floating foundation option be selected as part of the final PDE then anchoring and mooring systems will be required. The floating foundation may be attached to the seabed with up to nine mooring lines and anchors per foundation. A number of options are being considered for mooring lines, including semi-taut, catenary and vertical and tilted tendons (taut), as well as for anchors including drag embedment anchors, driven piles, suction piles, drilled piles, suction embedment plate anchors, drilled-and-grouted rock anchors, vertically loaded anchors, or gravity blocks.

### Inter-Array Cables

- 3.2.6 The electrical current produced by the Wind Turbines will be carried to the OSPs via IACs. There may be an IAC backlink, which will allow for partial re-routing of power in case of cable failure. The exact location and lengths of the IACs, along with the possible backlink will be dependent on the final design of the Proposed Development and will be considered in parallel to the final Wind Turbine layout.
- 3.2.7 The Proposed Development PDE currently considers the use of both static and dynamic IACs. Static IACs are laid directly on the seafloor between the Wind Turbines and OSPs, and are associated with fixed foundations. In contrast, dynamic IACs arch in the water column in order to create a ‘lazy s’ shape, due to the use of buoyancy modules before they reach the seabed. Where possible, the IACs will be buried to an appropriate target burial depth.
- 3.2.8 The PDE for IACs is presented in Table 3.1.

**Table 3.1: Maximum PDE for the IACs**

Parameter	Maximum PDE
Total IAC length (km)	185
Target burial depth (m)	Between 1 m and 3 m

Parameter	Maximum PDE
Width of seabed corridor (disturbance) from installation tool (m)	25
Trench width (m)	6

### Interconnector Cables

3.2.9 Each of the OSPs will be connected to the other OSPs within the Array Area using Interconnector Cables. Where possible the cables will be buried to an appropriate target burial depth. The Interconnector Cables will be installed by the same methodologies proposed for IAC, with final methodology determined during the Proposed Development’s final design phase.

3.2.10 The PDE for Interconnector Cables is presented in Table 3.2.

**Table 3.2: Maximum PDE for the Interconnector Cables.**

Parameter	Maximum PDE
Number of Interconnector Cables within Array Area	3
Total length of Interconnector Cables (km)	60
Target burial depth (m)	Between 1 m and 3 m
Trench width (m)	6
Width of seabed corridor (disturbance) from installation tool (m)	25

### Subsea Collectors

3.2.11 An alternative solution for connecting dynamic IACs is to use SCs, which is also being considered. SCs would be used to connect Wind Turbines in clusters to the OSP, i.e. several Wind Turbines are hooked up in a star pattern with individual IAC linking to the SC. The number of SCs required would be typically equivalent to the number of strings required if Wind Turbines are daisy chained like in more traditional IAC layouts. For the Proposed Development this would be between 16 to 20 SCs.

## 3.3 Offshore Transmission Assets

3.3.1 The Offshore Transmission Assets are composed of:

- up to three OSPs with fixed foundations and supporting infrastructure including scour protection (as required);

- up to four Offshore Export Cables, totalling 360 km in length; and
- cable protection and utility crossings where required.

### OSPs, Foundations and Support Structures

3.3.2 The Proposed Development may require up to three OSPs which will be located within the Array Area of the Scoping Boundary. The Proposed Development will use High Voltage Alternating Current (HVAC) transmission technology. The final electrical layout for the Proposed Development will determine the final number, location(s), and specifications of each OSP, and will be determined during the Proposed Development detailed design phase.

3.3.3 Each OSP will sit on a fixed base foundation. The Applicant proposes to use jacket piled foundations, with up to eight-legs, for the OSPs. The PDE for the Proposed Development is based on a maximum of three piled jacket foundations being required, with eight legs per foundation, and four piles per leg (therefore a maximum of 32 piles required per foundation).

### Offshore Export Cables

3.3.4 To transfer the energy from the OSPs located in the Array Area to Landfall (and subsequent onshore transmission infrastructure), up to four HVAC cables may be laid within the Export Cable Corridor with a maximum (indicative) cable length of 90 km each.

3.3.5 As with the IACs and Interconnector Cables, where possible the Offshore Export Cables will be buried to an appropriate target burial depth to ensure they are protected, to reduce the need for cable protection and to minimise interaction with other sea users.

3.3.6 The PDE for the key parameters of the Offshore Export Cables is provided in Table 3.3. The cable installation and protection methodology will be defined within the final PDE presented as part of the Offshore EIA Report.

**Table 3.3: PDE for Offshore Export Cable**

Parameter	Maximum PDE
Number of Offshore Export Cables within Array Area	4
Total length of Offshore Export Cables, per cable (km)	90
Target burial depth (m)	Between 1 m and 3 m
Trench width (m)	6



Parameter	Maximum PDE
Width of seabed corridor (disturbance) from installation tool (m)	25

## Landfall Infrastructure

- 3.3.7 In order to bring power generated at the Array Area to shore and to connect to the Onshore Transmission Assets, the Offshore Export Cables need to pass through the Intertidal Area to the transition Joint Bays (which are located above MHWS).
- 3.3.8 Two main methods are currently being considered as part of the PDE: open trenching and trenchless technology (i.e. Horizontal Directional Drilling). Further site investigations and engineering design work is required to further refine these options and further detail will be provided within the PDE within the Offshore EIA Report.

## 3.4 Seabed Preparation

- 3.4.1 Prior to the installation of Offshore Infrastructure, it is likely that seabed preparation will be required, including pre-sweeping, seabed-levelling, boulder clearance, pre-cut trenching and the removal of debris (e.g. fishing nets, out of service utilities, lost anchors, or Unexploded Ordnance (UXO)). Excavation may also be required to allow access and removal where debris is found to be present below the seabed surface. Furthermore, pre and post-installation of rock berms, concrete bridges, mattresses and other cable protection systems (steel/rubber/Polyethylene/Polyurethane sleeves or tubes) may be needed in different configurations for installation of cable systems in locations where the cable(s) routing cannot avoid steep slopes or need to cross channels or ravines in the Array Area or Export Cable Corridor.
- 3.4.2 The risk posed by UXO is to be reduced through a dedicated UXO survey and risk strategy. Where potential UXO are identified, they may either be avoided (e.g. through re-routing or micro-siting) or cleared using dedicated removal methodologies.
- 3.4.3 Certain removal methods (e.g. UXO clearance or detonation) have the potential to create underwater noise, which may lead to the impacts on marine receptors. Therefore, the possible clearance of UXOs will be considered as part of the Proposed Development and included in the Offshore EIA Report and RIAA. The location, number and sizes of UXOs will not be known at the time of submission of the Offshore Application. Therefore, estimates of these parameters using geophysical data and desk-based studies will be made to inform the assessment.

### 3.5 Scour Protection

- 3.5.1 Scour protection methods may be utilised to mitigate the likelihood of scour developing, which is likely to include graded rock, although other options including mattresses, and rock bags are included in the PDE. The specific requirements for scour protection will vary according to seabed conditions and foundation types considered, and therefore final parameters will be determined following the finalisation of foundation structures.
- 3.5.2 In addition, cable or pipeline crossings may be required including where Proposed Development cables (IACs, Interconnector and Offshore Export Cables) need to cross third party assets. Cable crossings may also be needed for Proposed Development assets, where for example, IACs cross Interconnector Cables. Possible options for crossings include the use of graded rock berms, rock bags and/or concrete mattresses. Further detailed design work is required to understand the number and design of possible crossings required and further detail will be included in the Offshore EIA Report and RIAA.

### 3.6 Wet Storage

- 3.6.1 Due to the early stage of the Proposed Development, details on the assembly and the need for possible wet storage of infrastructure is not known at this stage. There is, however, potential that wet storage may be needed to facilitate construction of the Proposed Development, by the Applicant or ports and/or technology providers. Wet storage options may include:
- following manufacture, substructures may be stored within the marine environment until ready to install; and
  - installation of Wind Turbines on substructures may take place adjacent to a specified construction ports and may require transport of the substructures from their storage location.
- 3.6.2 These wet storage options would typically precede the completed units being towed to the Array Area and installed. The requirements for, and locations of wet storage of substructures are not known and relevant details may not be known with greater certainty until the post-consent stage. It is considered that relevant ports, harbours or other storage facilities will secure the necessary consents required as part of their operating consents and will undertake the associated assessments, and the Offshore EIA Report and RIAA for the Proposed Development will consider these activities as part of the CEA and in-combination assessment to the extent possible known at the time of the Offshore Application submission.
- 3.6.3 The placement/wet storage of moorings, anchors and IACs within the Array Area during construction may also be required.

### 3.7 Construction

3.7.1 It is anticipated that the Proposed Development will be constructed over a period of five years. Construction activities will include the following:

- pre-construction surveys;
- seabed preparation activities;
- foundations, moorings and anchors installation;
- OSP installation and commissioning;
- Interconnector Cables installation;
- IACs installation;
- Offshore Export Cable installation;
- Wind Turbine installation and commissioning; and
- post-construction as-built surveys.

3.7.2 The construction phase of the Proposed Development will require support from various construction vessels, including but not limited to:

- main installation and support vessels;
- tug/anchor handlers;
- heavy lift vessels;
- supply vessels;
- jack-up vessels;
- guard vessels;
- survey vessels;
- crew transfer vessels;
- seabed preparation vessels;
- cable lay installation and support vessels;
- scour protection installation vessels; and
- cable protection installation vessels.

### 3.8 Operation and Maintenance

3.8.1 Following the completion of the construction phase of the Proposed Development, the Project will enter the O&M phase. A combination of routine and non-routine O&M works will be carried out throughout the lifetime of the Proposed Development.

3.8.2 Routine maintenance encompasses activities such as inspections, removal of marine growth, minor repairs, cable burial surveys, cleaning, replacement of moorings, and the replacement of consumables and corrosion protection systems.

3.8.3 Non-routine major maintenance includes more significant tasks such as:

- replacing components or infrastructure and equipment (e.g. Wind Turbine blades, gearboxes, Interconnector Cables and

IACs, and access ladders). Replacement could take place offshore or in port by towing the floating foundations back to port;

- replenishing or replacing scour and cable protection;
- cable reburial, repair, and replacement;
- painting and other coating works; and
- geophysical surveys.

3.8.4 The O&M phase is likely to utilise crew transfer vessels, jack-up vessels, cable repair vessels, service operation vessels, excavators or backhoe dredgers, and other similar vessels. There is a potential for helicopters to be used to transport personnel and equipment, and drones to be used for inspections and/or equipment transportation.

### 3.9 Decommissioning and Repowering

3.9.1 In accordance with Section 105 of the Energy Act 2004 (as amended), developers of offshore renewable energy projects are required to prepare a decommissioning programme which requires approval from Scottish Ministers. A Section 105 notice is issued to developers following the granting of consent/licences, and subsequently the offshore renewable energy developer is required to provide a comprehensive plan of decommissioning works. This plan should include an overview of the expected cost and financial securities. This plan should adhere to good industry practice, relevant guidance and decommissioning-related legislation in effect at that time. The plan will undergo a consultation process involving an approved set of stakeholders and will be made publicly available.

3.9.2 Specific details on the decommissioning activities are not known at this stage but are anticipated to generally be a reverse of the installation process. Decommissioning activities are likely to include removal of Wind Turbines, OSPs, and associated Offshore Infrastructure. The Offshore EIA Report will present an overview of the anticipated decommissioning events, including an assessment of the potential significant environmental effects this phase may present to receptors.

3.9.3 There is also the possibility of extending the lifetime of the Proposed Development's Offshore Generation Assets through repowering, subject to compliance with the relevant consenting and licensing requirements prevailing at that time.

## 4 Identification of European Sites and Features

4.1.1 This section provides a list of European sites (including Ramsar sites), and their qualifying features for which there is potential for connectivity with the Proposed Development, using the criteria outlined in Table 2.1, and which therefore should be taken forward for consideration of LSE in Section 5.

4.1.2 Each of the following receptor groups are considered in turn:

- Annex I habitats (offshore and coastal) (Section 4.2);
- Annex II diadromous fish species (Section 4.3);
- Annex II marine mammals (Section 4.4);
- Annex II species (onshore) (Section 4.5);
- Marine ornithological features (Section 4.6); and
- Onshore ornithological features (Section 4.7).

### 4.2 Sites designated for Annex I habitats (offshore and coastal)

4.2.1 This section details the results of the process to identify European sites with relevant Annex I habitats (offshore and coastal) to be taken forward for detailed assessment of LSE based on the methodology and criteria in Section 2.5 and Table 2.1.

4.2.2 The approach adopted focuses on the Annex I habitat qualifying features for which there is considered to be a potential for impact as a result of the Proposed Development. Whilst only these qualifying features will be screened in for further consideration, it is acknowledged that the Competent Authority must undertake the LSE Screening, and any subsequent AA, at the site level and not for individual qualifying features.

#### Initial identification of European sites for Annex I habitats

##### *Criterion 1*

4.2.3 There are no European sites with relevant qualifying Annex I habitats that overlap with the Proposed Development. On this basis, no sites are screened in for further consideration for Criterion 1.

##### *Criterion 2*

4.2.4 There are no European sites that meet Criterion 2, which refers to mobile features whose range (e.g. foraging, migratory, overwintering, breeding or natural habitat range) overlaps with the Proposed Development (outlined in Table 2.1) for Annex I habitats. Annex I habitats are sessile, therefore, do not have foraging ranges that may overlap with the Proposed Development. No sites are screened in for further consideration on this basis.

### *Criterion 3*

- 4.2.5 There is the potential for indirect effects to sites designated for Annex I habitats, as a result of increases in Suspended Sediment Concentrations (SSC) and associated deposition arising from the construction, O&M and decommissioning of the Proposed Development.
- 4.2.6 For this Stage 1 LSE Screening Report, one tidal excursion has been used to estimate the spatial extent of indirect effects such as increased SSC associated with the Proposed Development. One spring tidal excursion is defined as the distance that suspended sediment may be transported before being carried back on the returning tide. Modelling has been undertaken to enable a site-specific tidal excursion to be determined. As presented in Section 7: Physical Processes of the Offshore Scoping Report, the tidal excursion ranged from 2.01 km to 13.07 km. For the purposes of this Stage 1 LSE Screening Report, a precautionary approach has been adopted and a 20 km buffer for indirect effects on Annex I habitats has been applied. This buffer is considered to be sufficiently precautionary to capture all European sites within the Zol for indirect effects associated with the Proposed Development.
- 4.2.7 There are no European sites with Annex I habitat qualifying features that fall within the aforementioned 20 km buffer. Therefore, no sites have been screened in for further consideration on this basis.

### Summary of Initial Screening of European Sites Designated for Annex I habitats (Offshore and Coastal)

- 4.2.8 The initial screening process has identified no European sites with Annex I habitat (offshore and coastal) features to be taken forward for assessment of LSE in Section 4.7 of this Stage 1 LSE Screening Report.

### 4.3 Sites Designated for Annex II Diadromous Fish and Shellfish

- 4.3.1 This section outlines the results of the process to identify European sites with relevant Annex II diadromous fish and shellfish species to be taken forward for detailed assessment of LSE based on the methodology and criteria outlined in Section 2.5 and Table 2.1.
- 4.3.2 The approach adopted for this Stage 1 LSE Screening Report focuses on the Annex II diadromous fish and shellfish qualifying features for which there is considered to be a potential for impact as a result of the Proposed Development. Whilst only these qualifying features will be screened in for further consideration, it is acknowledged that the Competent Authority must undertake the LSE Screening, and any

subsequent AA, at the site level and not for individual qualifying features.

4.3.3 Based on a review of key desktop sources and the summary of the baseline environment undertaken in Section 10: Fish and Shellfish Ecology, of the Offshore Scoping Report the following Annex II diadromous fish and shellfish species have the potential to occur within the vicinity of the Proposed Development:

- Atlantic salmon *Salmo salar*;
- freshwater pearl mussel *Margaritifera margaritifera* (this species has the potential to be indirectly impacted through potential impacts on Atlantic salmon due to its symbiotic relationship, where Atlantic salmon are a host species during a critical phase of the mussel's lifecycle);
- river lamprey *Lampetra fluviatilis*;
- sea lamprey *Petromyzon marinus*;
- allis shad *Alosa alosa*; and
- twaite shad *Alosa fallax*.

## Initial Identification of European Sites for Annex II Diadromous Fish and Shellfish Features

### Criterion 1

4.3.4 There are no European sites with relevant Annex II diadromous fish and shellfish species as qualifying features which overlap with the Proposed Development. On this basis, no sites are screened in for further consideration for diadromous fish and shellfish for this criterion.

### Criterion 2

4.3.5 There is potential for the activities associated with the Proposed Development to result in impacts on Annex II diadromous fish and shellfish species that are qualifying features of European sites at a distance from the Proposed Development. This is because these species are highly mobile and utilise both freshwater and marine environments throughout their life cycles.

4.3.6 A precautionary approach to the identification of European sites has, therefore, been adopted in order to capture all European sites with the potential for connectivity with the Proposed Development, and, in particular, to consider the potential for disruption to migration (i.e. barriers to migration) of diadromous fish between natal rivers (river of origin) and their marine habitats. The approach taken differs between species depending on their known behavioural patterns.

4.3.7 For the purposes of this Stage 1 LSE Screening Report, a precautionary approach has been adopted by applying an initial

preliminary buffer of 100 km from the Proposed Development, determined through professional judgement for Annex II diadromous fish and shellfish species. An exception has been made for Atlantic salmon and freshwater pearl mussel where a refined area has been considered based on likely migration routes and the anadromous fish region boundaries shown in Figure 4.1 and discussed in the following paragraphs (ABPmer, 2014, Malcolm *et al.*, 2010).

- 4.3.8 Evidence from Newton *et al.* (2017) and Marine Scotland Science (2019) suggests that Atlantic salmon smolts migrating from rivers in the Moray Firth head north and directly east across the North Sea relatively rapidly, influenced primarily by tidal currents. Similar evidence of a rapid east and northerly migration out into the North Sea has also been shown for the River Dee in Aberdeenshire (Marine Scotland Science, 2019) and River Dee Trust and Marine Scotland Science (2023) and the River Conon in Ross-shire (Newton *et al.*, 2021).
- 4.3.9 Similarly, for adult Atlantic salmon, while there is some evidence that adult Atlantic salmon may migrate along the east coast of Scotland, the latest evidence indicates that adult migration to natal rivers in the Moray Firth is most likely from the north (see Figure 4.1 from The Crown Estate (2019) and Figure 4.2 from Malcolm *et al.* (2010)).
- 4.3.10 Based on the information provided above and considering the location of the Proposed Development in relation to the predominant migration routes, barriers to Atlantic salmon migrating to and from SACs flowing into the Moray Firth are considered to be very low. There could however be barrier effects for Atlantic salmon migrating to and from SACs flowing out to the Atlantic from the north of Scotland. Atlantic salmon in this region are suggested to move through the Pentland Firth, between mainland Scotland and the islands of Orkney (Figure 4.1).
- 4.3.11 For the purposes of identifying European sites and qualifying features to be taken forward for consideration of LSE, all SACs for Atlantic salmon (and freshwater pearl mussel) located within the North anadromous fish region, shown in Figure 4.1, are screened in for further consideration. In addition, those SACs in the part of the North-East anadromous fish region encompassing the Moray Firth out to Peterhead have also been screened in for assessment of LSE.
- 4.3.12 On this basis, a total of nine European sites have been screened in using this criterion and must, therefore, be taken forward for assessment of LSE in Section 5. These are:
- Berriedale and Langwell Waters SAC;
  - River Thurso SAC;
  - River Borgie SAC;
  - River Naver SAC;
  - River Spey SAC;



- Evelix SAC;
- River Oykel SAC;
- Foinaven SAC; and
- Ardvair and Loch a' Mhuilinn Woodlands SAC.

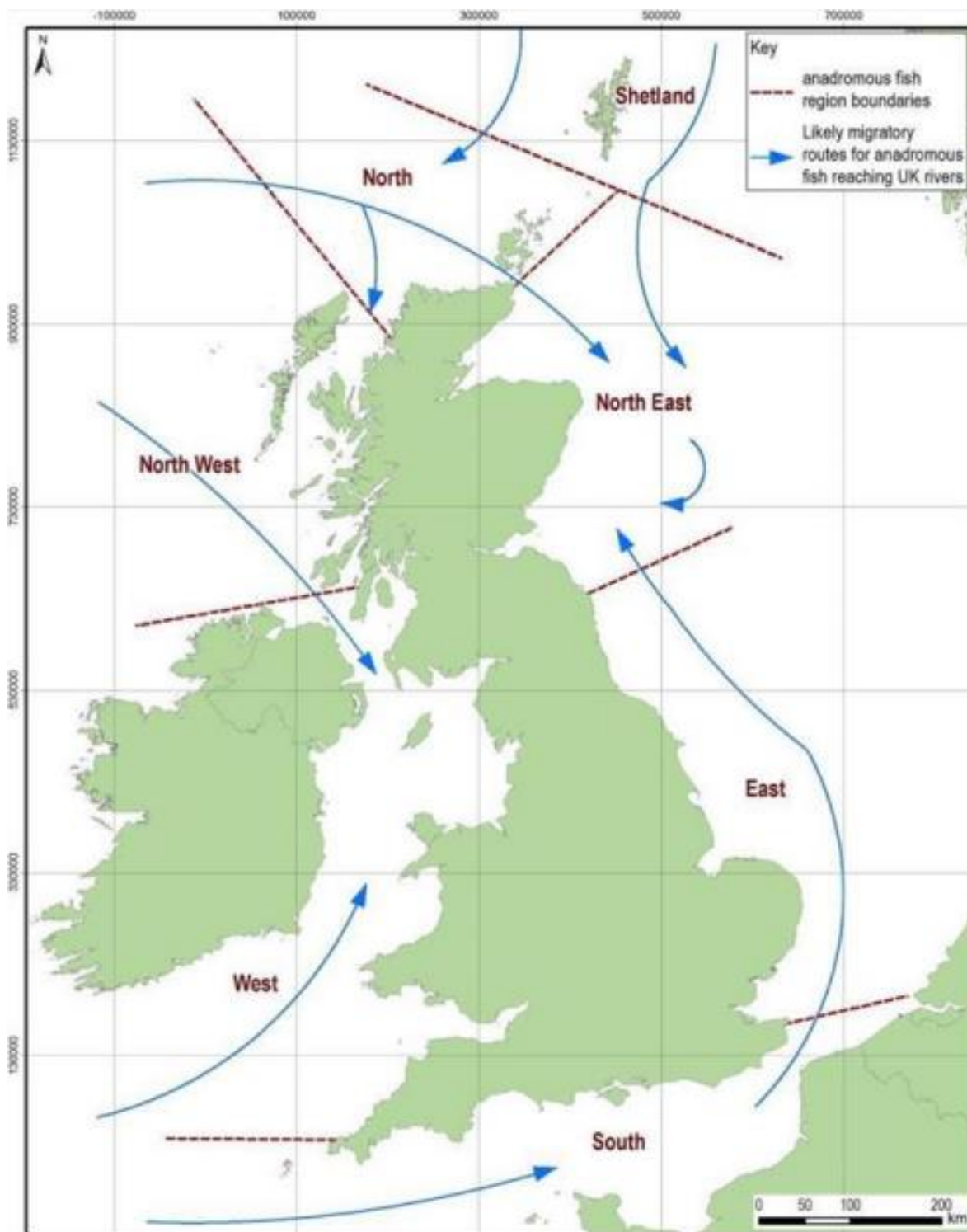


Figure 4.1: Anadromous Fish Region Boundaries and Likely Migration Routes for Anadromous Fish Reaching UK Rivers (ABPmer, 2014)

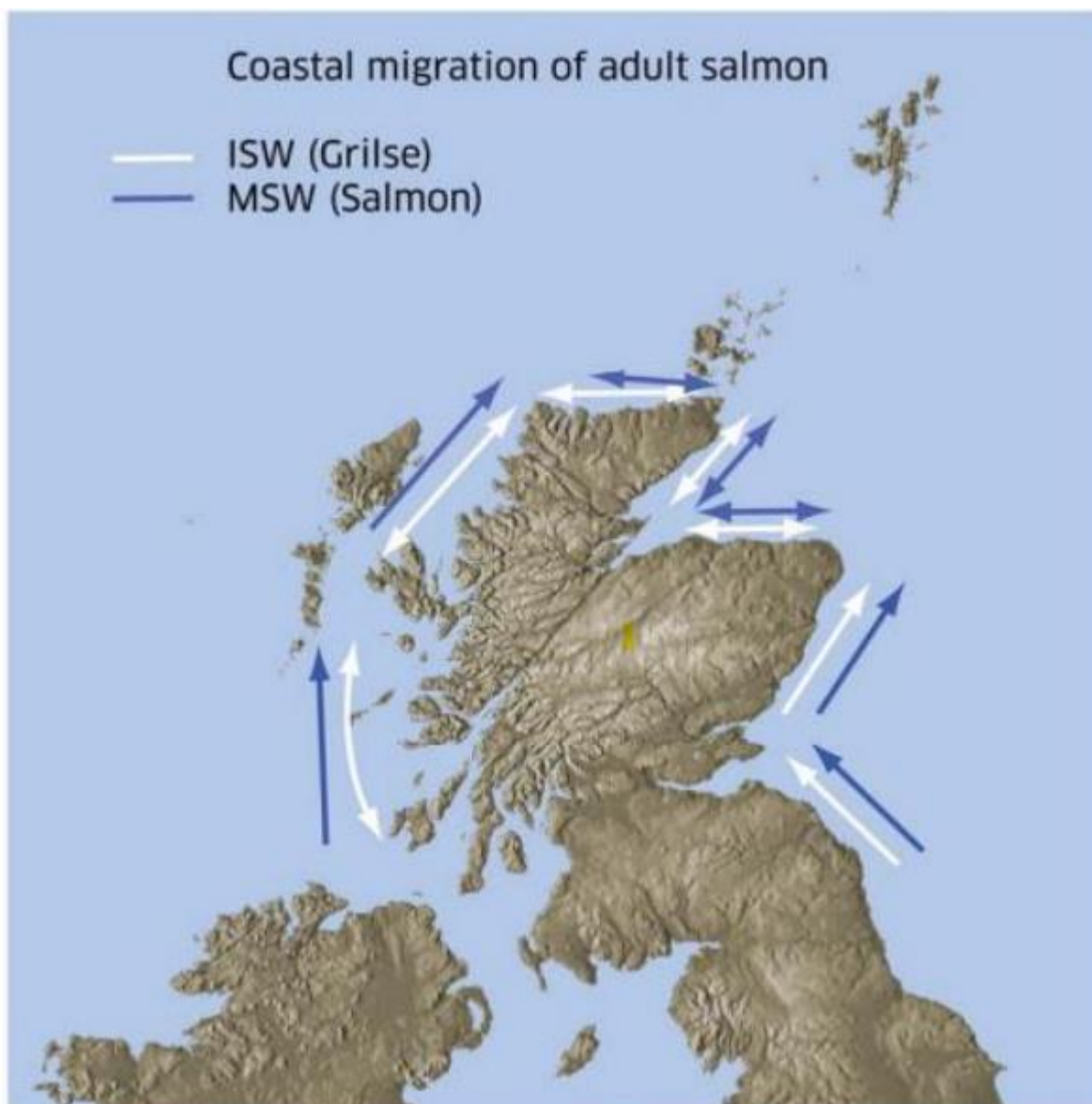


Figure 4.2: Dominant Directions of Travel for Atlantic Salmon (One Sea Winter and Multi Sea Winter) in Scottish Coastal Waters Based on Tagging Studies (Source: Malcolm *JMPod*, 2010)

### Criterion 3

- 4.3.13 Given the large buffer proposed for Criterion 2 (i.e. broadly a 100 km buffer but also screening in all relevant SAC rivers in the North anadromous fish region boundary as well as those flowing into the Moray Firth), the Zol for key impacts to diadromous fish species (i.e. subsea noise, habitat loss, increased SSC and EMF) are anticipated to be well within this range. Therefore, no additional European sites with Annex II diadromous fish and shellfish as qualifying features are screened in for further consideration on the basis of Criterion 3.

## Summary of Initial Screening of European Sites Designated for Annex II Diadromous Fish and Shellfish Feature

- 4.3.14 The initial screening process has identified nine European sites with Annex II diadromous fish and shellfish species as qualifying features to be taken forward for detailed assessment of LSE in Section 5 of this report. The sites are listed in Table 4.1 and illustrated in Figure 4.3.

**Table 4.1: European Sites Designated for Annex II Diadromous Fish and Shellfish Species Taken Forward for the Assessment of LSE**

European site	Relevant Annex II diadromous fish and shellfish features identified through initial screening of sites	Distance to Proposed Development Array Area (km) <sup>1</sup>	Distance to Proposed Development Export Cable Corridor (km) <sup>1</sup>	Other qualifying features
Berriedale and Langwell Waters SAC	Atlantic salmon	72.1	46.6	None
River Thurso SAC	Atlantic salmon	94.8	47.2	None
River Borgie SAC	Atlantic salmon Freshwater pearl mussel	114.1	88.6	Otter <sup>1</sup> <i>Lutra lutra</i>
River Naver SAC	Atlantic salmon Freshwater pearl mussel <sup>2</sup>	118.3	91.3	None
River Spey SAC	Atlantic salmon Freshwater pearl mussel <sup>2</sup> Sea lamprey	131.6	91.4	Otter <sup>1</sup>
Evelix SAC	Freshwater pearl mussel <sup>2</sup>	148.0	100.8	None

<sup>1</sup> Note: All distances are measured as the marine route to the site (i.e. not the distance as the crow flies).

European site	Relevant Annex II diadromous fish and shellfish features identified through initial screening of sites	Distance to Proposed Development Array (km) <sup>1</sup>	Distance to Proposed Development Export Cable Corridor (km) <sup>1</sup>	Other qualifying features
River Oykel SAC	Atlantic salmon Freshwater pearl mussel	164.3	115.9	None
Foinaven SAC	Freshwater pearl mussel <sup>2</sup>	188.8	162.4	Acid peat-stained lakes and ponds Acidic scree <sup>3</sup> Alpine and subalpine heaths <sup>3</sup> Blanket bog <sup>3</sup> Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels <sup>3</sup> Depressions on peat substrates <sup>3</sup> Dry heaths <sup>3</sup> Montane acid grasslands Otter <sup>1</sup> Plants in crevices on acid rocks <sup>3</sup> Plants in crevices on base-rich rocks <sup>3</sup> Species-rich grassland with mat-grass in upland areas <sup>3</sup>

European site	Relevant Annex II diadromous fish and shellfish features identified through initial screening of sites	Distance to Proposed Development Array (km) <sup>1</sup>	Distance to Proposed Development Export Cable Corridor (km) <sup>1</sup>	Other qualifying features
				Tall herb communities <sup>3</sup> Wet heathland with cross-leaved heath <sup>3</sup>
Ardvar and Loch a' Mhuilinn Woodlands SAC	Freshwater pearl mussel <sup>2</sup>	197.6	175.0	Otter <sup>1</sup> Western acidic oak woodland <sup>3</sup>

<sup>1</sup> Otter is also a feature of this site but has been screened out of assessment based on distance (see Section 4.5).

<sup>2</sup> Whilst freshwater pearl mussel is not a diadromous fish, Atlantic salmon are host species during a critical parasitic phase of the lifecycle of this species. There could therefore be an indirect impact upon the freshwater pearl mussel feature of the site if the Atlantic salmon population is adversely affected.

<sup>3</sup> Annex I habitats have been screened out of further assessment on the basis that they are outside the ZOI for Annex I habitats as determined in Criterion 3 of Section 4.2 and so there will be no receptor-impact pathway.

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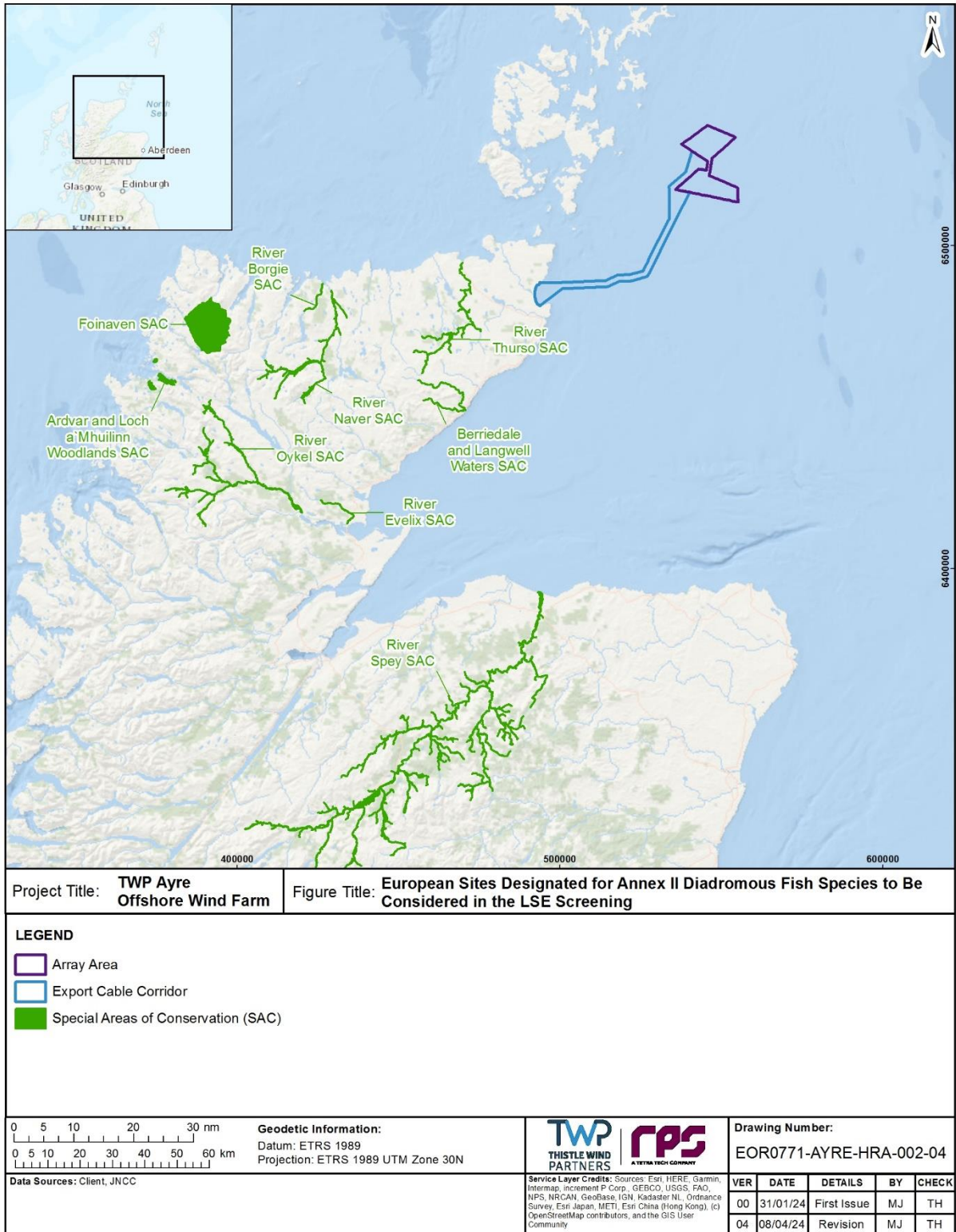


Figure 4.3: European Sites Designated for Annex II Diadromous Fish and Shellfish Species to Be Considered in the LSE Screening

## 4.4 Sites Designated for Annex II Marine Mammal Features

4.4.1 This section outlines the results of the process to identify European sites with relevant Annex II marine mammal species to be taken forward for assessment of LSE based on the methodology and criteria outlined in Section 2.5 and Table 2.1.

4.4.2 The approach adopted for this Stage 1 LSE Screening Report focuses on the Annex II marine mammal qualifying features for which there is considered to be a potential for impact as a result of the Proposed Development. Whilst only these qualifying features will be screened in for further consideration, it is acknowledged that the Competent Authority must undertake the LSE Screening, and any subsequent AA, at the site level and not for individual qualifying features.

4.4.3 Site-specific Digital Aerial Surveys (DAS) have been conducted over a two year period (March 2022 to February 2024) across the Plan Option Area plus a 12 km buffer.

4.4.4 At the time of writing, sightings from March 2022 to November 2023 (21 months) were available and have been used to inform this Stage 1 LSE Screening Report. Based on the data collected and analysed to date, and a review of key desktop sources undertaken for the Offshore Scoping Report, the following Annex II marine mammal species are considered likely to occur in the vicinity of the Proposed Development, and are considered in this Stage 1 LSE Screening Report:

- grey seal *Halichoerus grypus*;
- harbour seal *Phoca vitulina*;
- harbour porpoise *Phocoena phocoena*; and
- bottlenose dolphin *Tursiops truncatus*.

### Initial identification of European sites for Annex II marine mammal features

#### *Criterion 1*

4.4.5 There are no European sites with relevant Annex II marine mammal species as qualifying features which overlap with the Proposed Development. On this basis, no sites are screened in for further consideration for Annex II marine mammals for this Criterion.

#### *Criterion 2*

4.4.6 Marine mammals are highly mobile species, which can forage over wide areas. Therefore, there is the potential for activities associated with the construction, O&M and decommissioning of the Proposed Development to result in impacts on Annex II marine mammal species at distance from the European sites for which they are qualifying features. The following paragraphs present the relevant



ranges for the four Annex II marine mammals identified in paragraph 4.4.4.

### Cetaceans

- 4.4.7 The Regional Marine Mammal Study Area, presented in Section 11: Marine Mammals of the Offshore Scoping Report, includes the northern North Sea as well as the west of Scotland extending into Atlantic Ocean and down to the north coast of Northern Ireland. The Regional Marine Mammal Study Area also extends eastward to include the coastline and waters of Norway, Sweden, Denmark, Germany and The Netherlands, as illustrated in Figure 4.4. The Regional Marine Mammal Study Area was informed by the marine mammal Management Units (MUs) for harbour porpoise and bottlenose dolphin, which are defined by the Inter Agency Marine Mammal Working Group (Inter Agency Marine Mammal Working Group (IAMMWG) *et al.*, 2015), in order to design an area that was representative of potential species-specific connectivity with the Proposed Development. The Regional Marine Mammal Study Area was defined as including the West Scotland MU and the northern part of the North Sea MU for harbour porpoise. The Regional Marine Mammal Study Area also includes the Coastal East Scotland MU, the Coastal West Scotland and Hebrides MU as well as the northern part of the Offshore Waters MU and Greater North Sea MU for bottlenose dolphin.
- 4.4.8 The Small Cetaceans in European Atlantic Waters of the North Sea-III (SCANS-III) and SCANS-IV data represent the most recent broadscale abundance data for harbour porpoise and bottlenose dolphin in the Regional Marine Mammal Study Area.
- 4.4.9 The Local Marine Mammal Study Area and Regional Marine Mammal Study Area are situated within the North Sea MU for harbour porpoise, which has an estimated population of 346,601 individuals (IAMMWG, 2022). During the first 21 months of the two-year site-specific aerial survey, 522 harbour porpoise were sighted.
- 4.4.10 For bottlenose dolphin the most recent population estimate for the SCANS-III survey block overlapping the Local Marine Mammal Study Area is 151 animals, with no sightings of bottlenose dolphin in SCANS-IV (Gilles *et al.*, 2023, Hammond *et al.*, 2021). During the first 21 months of the two-year site-specific aerial survey, no bottlenose dolphin were identified however 33 unidentified dolphin/porpoise were identified as well as 12 unidentified marine mammal.
- 4.4.11 The identification of relevant sites designated for Annex II cetaceans was undertaken using a precautionary approach in order to capture all sites with potential connectivity to the Proposed Development under Criterion 2. On this basis, all European sites designated for harbour porpoise and/or bottlenose dolphin that fall within the Regional Marine Mammal Study Area have been taken forward for

assessment of LSE. A total of 14 European sites designated for harbour porpoise and/or bottlenose dolphin have been screened in using this Criterion (Table 4.2).

#### Grey seal

- 4.4.12 The MUs for grey and harbour seal are defined by the Special Committee on Seals (SCOS, 2021). The Array Area is located within the North Coast and Orkney Seal MU and the Export Cable Corridor is located within the Moray Firth Seal MU.
- 4.4.13 At-sea distribution of grey seal derived from high-resolution tracking data is available for UK waters (Carter *et al.*, 2022). These data indicate that grey seal density across the Local Marine Mammal Study Area ranges between five to over 100 animals per 25 km<sup>2</sup> (Carter *et al.*, 2022). During the first 21 months of the two-year site-specific aerial survey, 721 grey seal were sighted, in addition to 44 unidentified seals. Grey seal were the most recorded species during the surveys.
- 4.4.14 Grey seal typical foraging ranges are up to 100 km from their haul out sites, although individuals have been recorded further than 100 km (SCOS, 2021). Therefore, for the initial screening of sites for grey seal, SACs within the Moray Firth Seal MU and North Coast and Orkney Seal MU have been taken forward for assessment of LSE. On this basis, one European site (Faray and Holm of Faray SAC) designated for grey seal has been identified for further consideration at LSE Screening (Table 4.2).

#### Harbour seal

- 4.4.15 At-sea distribution of harbour seal derived from high-resolution tracking data is available for UK waters (Carter *et al.*, 2022). These data indicate that harbour seal density across the Local Marine Mammal Study Area ranges between less than one to five animals per 25 km<sup>2</sup> (Carter *et al.*, 2022). During the first 21 months of the two-year site-specific aerial survey, no harbour seal were sighted. However, there were 44 unidentified seals recorded, which could have been harbour seals.
- 4.4.16 Harbour seals are generally considered to be more sedentary than grey seals, with few long range movements between distant haulout sites (SCOS, 2022). Foraging ranges vary substantially both regionally and within sites. Some harbour seals forage more than 100 km from their nearest haulout sites while others remain very close inshore within only a few kilometres of haulout sites (SCOS, 2020). The Proposed Development is located within the Moray Firth Seal MU and the North Coast and Orkney Seal MU. Therefore, in order to adopt a precautionary approach to the initial screening of sites for harbour seal, SACs within the Moray Firth Seal MU and North Coast and Orkney Seal MU have been taken forward for assessment of LSE. On

this basis, one European site designated for harbour seal (Sanday SAC) has been identified for further consideration at LSE Screening (Table 4.2).

### *Criterion 3*

- 4.4.17 Given the large distributions described for Criterion 2 for cetaceans and pinnipeds, the ZOI for key impacts to marine mammal species (i.e. underwater noise) are anticipated to take place well within this range. Therefore, no additional European sites or transboundary sites with Annex II marine mammals as qualifying features are screened in for further consideration on the basis of Criterion 3.

### Summary of Initial Screening of European Sites Designated for Annex II Marine Mammal Features

- 4.4.18 The initial screening process has identified 16 European sites with Annex II marine mammal species as qualifying features to be taken forward for detailed assessment of LSE in Section 5 of this report. The sites are listed Table 4.2 and illustrated in Figure 4.4.

**Table 4.2: European Sites Designated for Annex II Marine Mammal Features Taken Forward for the Assessment of LSE**

European site (site number)	Relevant Annex II marine mammals identified through initial screening of sites	Distance to Proposed Development Array Area (km) <sup>2</sup>	Distance to Proposed Development Export Cable Corridor (km) <sup>2</sup>	Other offshore qualifying features
<b>UK</b>				
Sanday SAC	Harbour seal	31.2	36.2	Intertidal mudflats and sandflats <sup>1</sup> Reefs <sup>1</sup> Subtidal sandbanks <sup>1</sup>
Faray and Holm of Faray SAC	Grey seal	44.8	48.5	None
Moray Firth SAC	Bottlenose dolphin	106.2	61.5	Subtidal sandbanks <sup>1</sup>
Inner Hebrides and the Minches SAC	Harbour porpoise	203.0	178.5	None
Southern North Sea SAC	Harbour porpoise	402.1	395.8	None
Skerries and Causeway SAC	Harbour porpoise	579.4	546.9	Sandbanks which are slightly covered by sea water all the time <sup>1</sup> Reefs <sup>1</sup>

<sup>2</sup> Note: All distances are measured as the marine route to the site (i.e. not the distance as the crow flies).

European site (site number)	Relevant Annex II marine mammals identified through initial screening of sites	Distance to Proposed Development Array Area (km) <sup>2</sup>	Distance to Proposed Development Export Cable Corridor (km) <sup>2</sup>	Other offshore qualifying features
				Submerged or partially submerged sea caves <sup>1</sup>
<b>The Netherlands</b>				
Doggersbank SAC	Harbour porpoise	485.91	490.5	None
<b>Germany</b>				
Doggerbank SCI	Harbour porpoise	487.9	494.8	None
Sylter Außenriff SCI	Harbour porpoise	664.0	674.5	None
SPA Östliche Deutsche Bucht SCI	Harbour porpoise	686.0	699.6	Grey seal <sup>3</sup> Harbour seal <sup>3</sup> Twaite shad <sup>2</sup> River lamprey <sup>2</sup> Reefs <sup>1</sup> Sandbanks which are slightly covered by seawater <sup>1</sup>
<b>Denmark</b>				
Gule Rev SAC	Harbour porpoise	609.7	621.3	None
Sydlig Nordsø SAC	Harbour porpoise	640.4	653.8	None
Store Rev SAC	Harbour porpoise	668.1	678.9	None

European site (site number)	Relevant Annex II marine mammals identified through initial screening of sites	Distance to Proposed Development Array Area (km) <sup>2</sup>	Distance to Proposed Development Export Cable Corridor (km) <sup>2</sup>	Other offshore qualifying features
Skagens Gren og Skagerak SAC	Harbour porpoise	703.4	714.4	Harbour seal <sup>3</sup>
Vadehavet med Ribe Å, Tved Å og Varde Å vest for Varde SAC	Harbour porpoise	704.5	717.6	None
<b>Sweden</b>				
Kosterfjorden-Väderöfjorden SAC	Harbour porpoise	785.2	795.4	Harbour seal <sup>3</sup>

<sup>1</sup> Annex I habitats have been screened out of further assessment on the basis that they are outside the ZOI for Annex I habitats as determined in Criterion 3 of Section 4.2 and so there will be no receptor-impact pathway.

<sup>2</sup> All other Annex II species have been screened out on the basis of distance from the Proposed Development and so there will be no receptor-impact pathway.

<sup>3</sup> Additional Annex II marine mammal features have been screened out on the basis that the SAC is not located within the relevant MU for that species and so there will be no receptor-impact pathway.

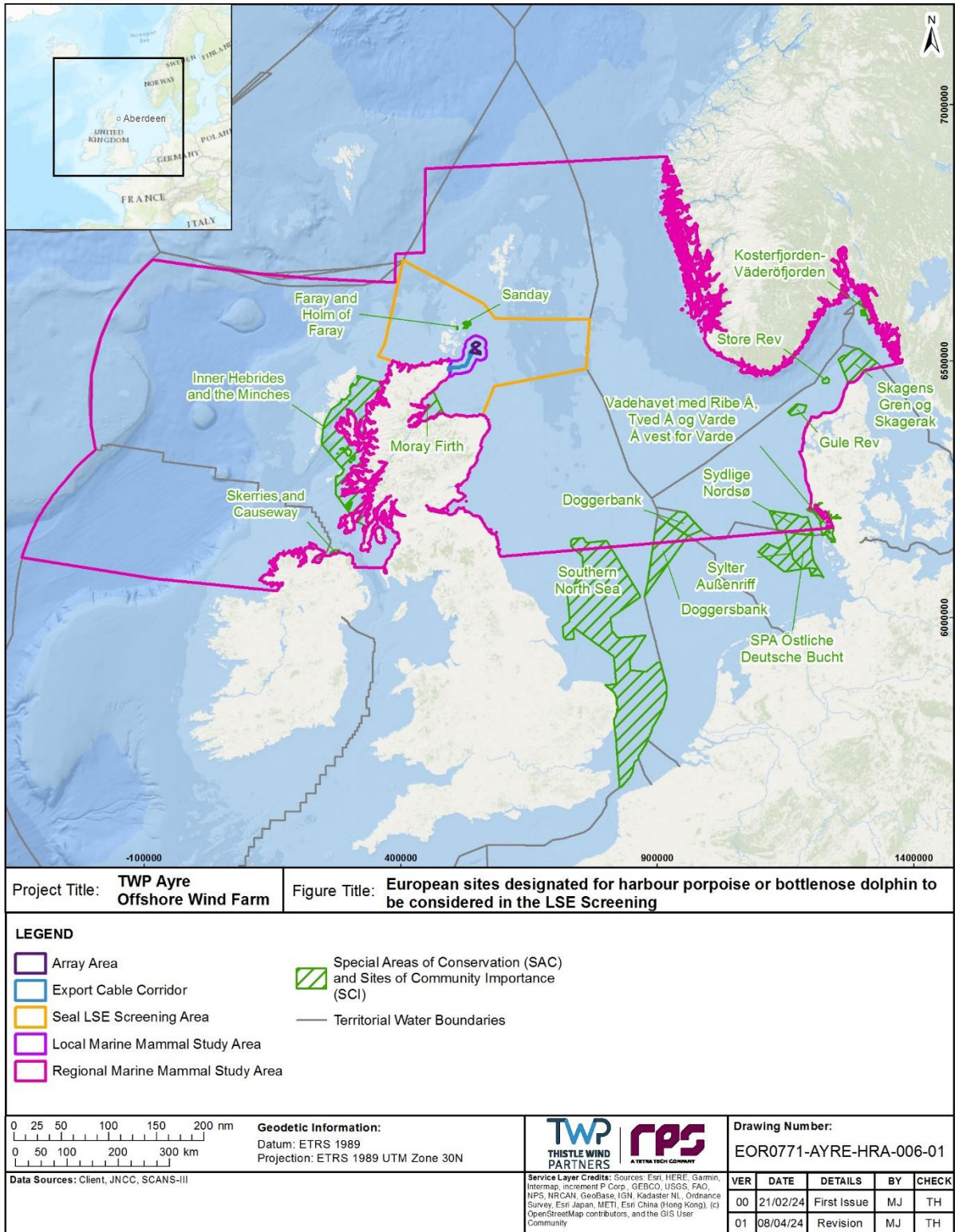


Figure 4.4: European Sites Designated for Annex II Marine Mammals to be Taken Forward for Assessment of LSE

## 4.5 Sites designated for Annex II species (Onshore)

- 4.5.1 This section outlines the results of the process to identify European sites with relevant Annex II species (onshore) to be taken forward for detailed assessment of LSE based on the methodology and criteria outlined in Section 2.5 and Table 2.1.
- 4.5.2 The Onshore Stage 1 LSE Screening will also identify European sites with relevant Annex II species (onshore) however this will be in relation to the impact of the onshore infrastructure rather than the offshore infrastructure as will be examined in this Offshore Stage 1 LSE Screening Report.

### Initial identification of European sites for Annex II species (onshore)

#### *Criterion 1*

- 4.5.3 There are no European sites with relevant Annex II terrestrial species as qualifying features which overlap with the Proposed Development. On this basis, no sites are screened in for further consideration for Annex II terrestrial species for this Criterion.

#### *Criterion 2*

- 4.5.4 With regards to mobile qualifying features of European sites whose range overlaps with the Proposed Development, bats and otter have been considered within this LSE screening for the potential to be affected by the elements of the Proposed Development seaward of MHWS. European sites and Annex II terrestrial species located landward of MHWS are considered in the Onshore LSE Screening Report.
- 4.5.5 Bats typically have a home range of approximately 5 to 10 km (between summer and winter roosts) (Collins (2016) cited: Bat Conservation Trust/BMT Cordah Limited (2005)) and so a ZOI of 10 km is considered precautionary. There are no SACs for bats within this range (the closest SAC designated for bat features is located over 800 km away and therefore outside of the ZOI).
- 4.5.6 The size of an otter's range depends on the quality of the habitat and food supply (Kruuk, 1995) but males can range along rivers for 35 km (UK Government, 2023). Males living in rivers and streams can have a mean linear range size of around 40 km and females living in the same habitat can have a linear home range of 20 km (NatureScot, 2005). The distances offshore that foraging occurs are unclear but are unlikely to be beyond water depths of greater than 10 m (Scottish Government, 2018). Also, while otter can move large distances along riverine habitats, they tend to be very territorial. In accordance with the SMP-OWE: strategic habitat regulations appraisal pre-screening report (Scottish Government, 2018), a screening range of 10 km has



been applied. Using a 10 km screening range, one SAC for otter was identified within this range.

### *Criterion 3*

- 4.5.7 Given the precautionary buffers adopted for Criterion 2, the ZOI for key impacts to Annex II species (onshore) resulting from the Proposed Development are anticipated to be well within this range. No additional European sites with Annex II species (onshore) as qualifying features are screened in for further consideration on the basis of Criterion 3.

### Summary of Initial Screening of European Sites Designated for Annex II Species (Onshore)

- 4.5.8 The initial screening process has identified one European site with Annex II species (onshore) as qualifying features to be taken forward for assessment of LSE in Section 5 of this Stage 1 LSE Screening Report. The site is listed in Table 4.4 and illustrated in Figure 4.5.

**Table 4.3: European Sites Designated for Annex II Species (Onshore) to be Taken Forward for the Assessment of LSE**

European site (site number)	Relevant Annex II species (onshore) identified through initial screening of sites	Distance to Proposed Development Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Other qualifying features
Caithness and Sutherland Peatland SAC	Otter	46.38	1.66	Acid peat-stained lakes and ponds <sup>1</sup> Blanket bog <sup>1</sup> Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels <sup>1</sup> Depressions on peat substrates <sup>1</sup> Marsh saxifrage ( <i>Saxifraga hirculus</i> ) <sup>2</sup> Very wet mires often identified by an unstable 'quaking' surface <sup>1</sup> Wet heathland with cross-leaved heath <sup>1</sup>

<sup>1</sup> Annex I habitats have been screened out of further assessment on the basis that they are outside the Zol for Annex I habitats as determined in Criterion 3 of Section 4.2 and so there will be no receptor-impact pathway.

<sup>2</sup> Annex II species has been screened out of further assessment on the basis that they are outside the Zol for Annex II species as determined in Criterion 3 of Section 4.2 and so there will be no receptor-impact pathway.

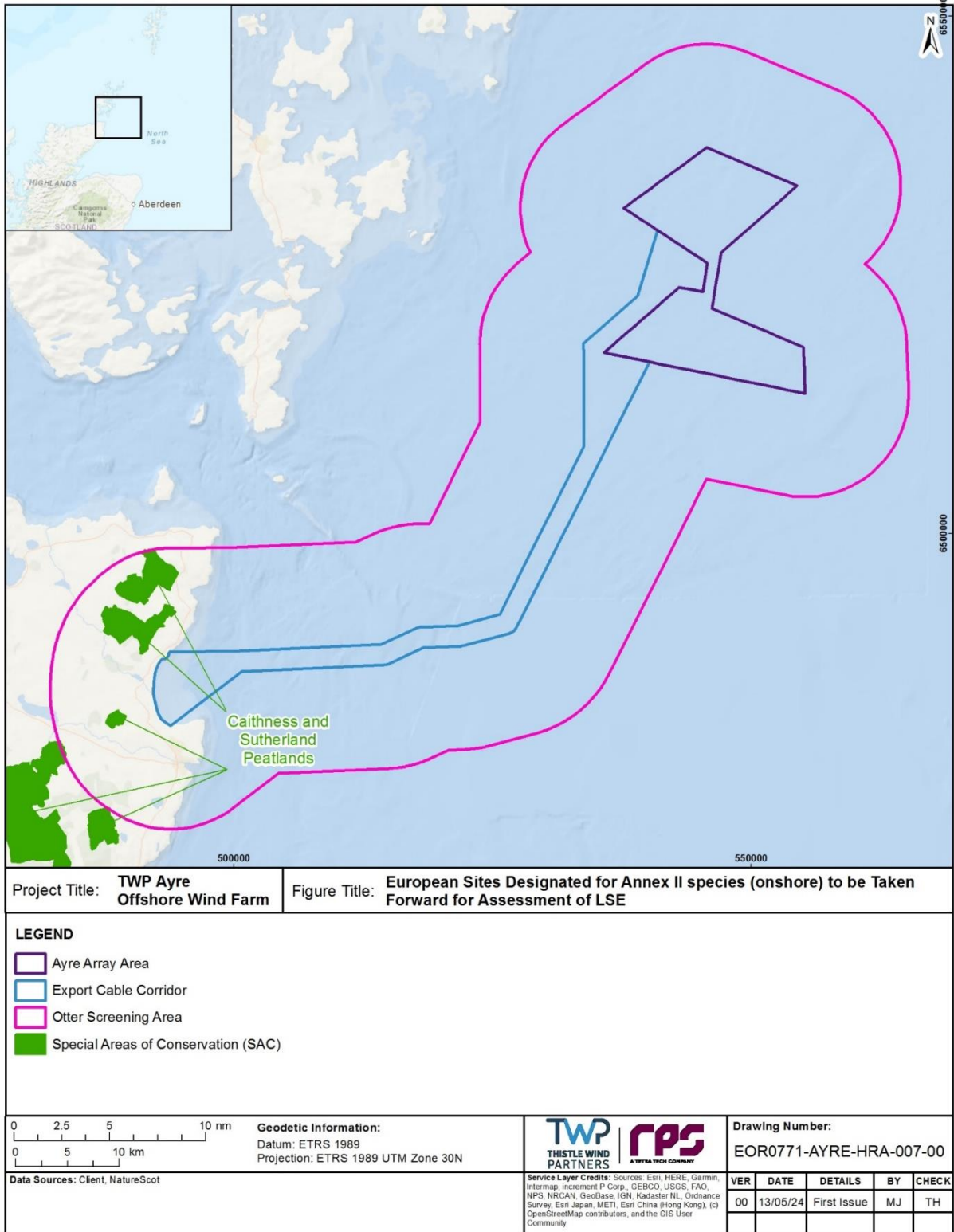


Figure 4.5: European Sites Designated for Annex II Species (Onshore) to be Taken Forward for Assessment of LSE

## 4.6 Sites Designated for Marine Ornithological Features

### Initial Identification for Marine Ornithological Features

- 4.6.1 The following sections detail the results of the process to identify European sites with relevant marine ornithological features to be taken forward to detailed assessment of LSE in Section 5.
- 4.6.2 At the time of writing, results from the initial 12 months (March 2022 to February 2023) of monthly DAS were available and used to inform preliminary analysis for the Offshore Scoping Report. Once the full dataset of 24 months is available it will be analysed in full and included in the RIAA, with the potential for additional key species and/or sites to be identified and included within the AA, which are not included here.
- 4.6.3 Screening will consider all seabird species with the potential to be impacted by the Proposed Development.

#### *Criterion 1*

- 4.6.4 There are no European sites with relevant marine ornithological qualifying features which overlap with the Proposed Development. On this basis, no sites are screened in for further consideration for marine ornithology for this criterion.

#### *Criterion 2*

- 4.6.5 There is potential for the activities associated with the Proposed Development to result in impacts on marine ornithological qualifying features of European sites at a distance from the Proposed Development.
- 4.6.6 Birds are highly mobile species, which can forage and migrate over wide areas. Birds present in offshore waters potentially affected by the construction, O&M, and decommissioning of the Proposed Development will be predominantly seabirds (defined for this report as auks, gulls, terns, gannets, skuas, shearwaters, petrels, cormorants, and divers). These species have the potential to be present in the vicinity of the Proposed Development during the breeding and non-breeding seasons (including the Spring and Autumn passage periods). Other bird species that may be affected by the Proposed Development include those which may fly through the Proposed Development area during their Spring and/or Autumn migration (or passage) periods (i.e. waterfowl), and any other species which may use the onshore or offshore waters which are potentially affected by the Proposed Development.

4.6.7 Based on the above, the SPAs and Ramsar sites considered to have the potential to be affected by the Proposed Development are those which:

- include seabird qualifying features that use the waters in and around the Proposed Development (i.e. for foraging); and
- include qualifying features which may fly through the area of the Proposed Development during migration.

4.6.8 The SPAs (and Ramsar sites) which meet these different criteria are outlined under four categories of:

- breeding seabird colony SPAs (and Ramsar sites) within the breeding season;
- breeding seabird colony SPAs (and Ramsar sites) within the non-breeding season(s);
- marine SPAs; and
- SPAs (and Ramsar sites) with migratory seabirds as qualifying features.

#### Breeding Colonies in the Breeding Season

4.6.9 During the breeding season, seabirds and other marine bird species demonstrate central-place foraging behaviour, whereby their foraging range extends out to sea from their nesting location which is a fixed-point. Recommended foraging ranges (km) obtained from NatureScot (2023) 'Guidance Note 6: Guidance to support Offshore Wind Applications – Marine Ornithology Impact Pathways for Offshore Wind Developments' which predominately used Woodward *et al.* (2019) were used to identify SPA and Ramsar site breeding colonies with foraging ranges overlapping the Proposed Development and thereby having potential connectivity.

4.6.10 As stated in NatureScot 'Guidance Note 6: Guidance to support Offshore Wind Applications – Marine Ornithology Impact Pathways for Offshore Wind Developments' (NatureScot, 2023), due to the location of the Proposed Development, the recommended foraging range will include the data from Fair Isle SPA. The recommended foraging range of the species considered are presented in Table 4.4.

**Table 4.4. Recommended Foraging Range of the Species Considered in this LSE Screening (taken from NatureScot, 2023)**

Species	Recommended Foraging Range (km)	Metric	Data Confidence
Arctic skua <i>Stercorarius parasiticus</i>	2.7	Mean +1 SD	Poor
Little tern <i>Sternula albifrons</i>	5	Max. and mean max.	Moderate
Red-throated diver <i>Gavia stellata</i>	9	Max. and mean max.	Low
Black guillemot <i>Cephus grylle</i>	9.1	Mean max.+1 SD	Moderate
Black-headed gull <i>Chroicocephalus ribundus</i>	18.5	Max. and mean max.	Uncertain
Mediterranean gull <i>Larus melanocephalus</i>	20	Max. and mean max.	Uncertain
Common eider <i>Somateria mollissima</i>	21.5	Mean max.	Poor
Roseate tern <i>Sterna dougallii</i>	23.2	Mean max.+1 SD	Moderate
European shag <i>Phalacrocorax aristotelis</i>	23.7	Mean max.+1 SD	Highest
Cormorant <i>Phalacrocorax carbo</i>	33.9	Mean max.+1 SD	Moderate
Common tern <i>Sterna hirundo</i>	26.9	Mean max.+1 SD	Good
Arctic tern <i>Sterna paradisea</i>	40.5	Mean max.+1 SD	Good

Species	Recommended Foraging Range (km)	Metric	Data Confidence
Common gull <i>Larus canus</i>	50	Max. and mean max.	Poor
Sandwich tern <i>Sterna sandvicensis</i>	57.5	Mean max.+1 SD	Moderate
Great black-backed gull <i>Larus marinus</i>	73	Max. and mean max.	Low
Herring gull <i>Larus argentatus</i>	85.6	Mean max.+1 SD	Good
Razorbill <i>Alca torda</i>	122.2	Mean max.+1 SD	Good
Common guillemot <i>Uria aalge</i>	153.7	Mean max.+1 SD	Highest
Lesser black-backed gull <i>Larus fuscus</i>	236	Mean max.+1 SD	Highest
Atlantic puffin <i>Fratercula arctica</i>	265.4	Mean max.+1 SD	Good
Black-legged kittiwake <i>Rissa tridactyla</i>	300.6	Mean max.+1 SD	Good
European storm petrel <i>Hydrobates pelagicus</i>	336	Max. and mean max.	Poor
Northern gannet <i>Morus bassanus</i>	509.4 (709 for St Kilda SPA and 590 for Forth Islands SPA)	Mean max.+1 SD	Highest
Leach's storm petrel <i>Hydrobates leucorhus</i>	657	Mean	Moderate

Species	Recommended Foraging Range (km)	Metric	Data Confidence
Great skua <i>Stercorarius skua</i>	931.2	Mean max.+1 SD	Uncertain
Northern fulmar <i>Fulmarus glacialis</i>	1200.2	Mean max.+1 SD	Good
Manx shearwater <i>Puffinus puffinus</i>	2365.5	Mean max.+1 SD	Moderate

4.6.11 To determine realistic connectivity with the Proposed Development during the breeding season, a marine pathway ‘by-sea’ foraging distance was used. The ‘by-sea’ distance represents the shortest route around land masses (following the coast) on the basis that seabirds will avoid flying over land masses. The ‘by-sea’ distance is appropriate largely for colonies identified on the west coast of Scotland and England, where the ‘by-sea’ foraging distance is likely to be greater than a straight-line distance between the Proposed Development and the colony. Therefore, no potential for connectivity exists if the distance is greater than the recommended foraging range.

#### Breeding Colonies in Non-Breeding Season

4.6.12 Seabirds from SPA and Ramsar site breeding colonies during the non-breeding seasons are not constrained to specific foraging range by the need to provide for young and they will disperse to areas beyond the recommended foraging range from their breeding colonies. As a result, there is potential for connectivity during the non-breeding season with a greater number of qualifying features from SPA and Ramsar site breeding colonies than during the breeding season.

4.6.13 Furness (2015) defines the regions within which non-breeding seabird populations are distributed in each bio-season and calculates regional Biologically Defined Minimum Population Scales (BDMPS) for each species. Where the Proposed Development overlaps with a BDMPS region, it is assumed there is potential for connectivity with that region and the SPAs contributing to that population. Due to the number of species included, they are split between Table 4.5 and Table 4.6. “Proportion contribution” in these tables refers to the proportion of the SPA population that is within the BDMPS region during that season. For example, 0.02 for Fulmar



from Cape Wrath in winter means 2% of the Fulmar from Cape Wrath SPA are in the UK North Sea BDMPS region in the winter season.

- 4.6.14 A more recent study on common guillemot (Buckingham *et al.*, 2022) found that common guillemot are more likely to stay within the vicinity of their breeding colonies and therefore the non-breeding population is defined as the breeding population within the mean maximum foraging range of the Proposed Development and the associated immature and sabbaticals. This was recommended in ‘Guidance Note 6: Guidance to support Offshore Wind Applications – Marine Ornithology Impact Pathways for Offshore Wind Developments’ issued by NatureScot (2023).
- 4.6.15 The distance between the SPA and the Proposed Development is not relevant for these identified SPAs with all potential connectivity taken from Furness (2015) and therefore no distances are presented.

**Table 4.5: Proportion Contribution of Different UK SPA populations to Seasonal BDMPS Populations Overlapping the Proposed Development (Based on Adult Birds Only), Derived from Furness (2015) – Part 1.**

SPA	Proportion of adult birds from each SPA that are present within the BDMPS population during the non-breeding period										
	Red-throated diver		Fulmar		Manx shearwater	Gannet		Cormorant	Shag	Arctic skua	
	Winter	Migration	Winter	Migration	Migration	Autumn migration	Spring migration	Non-breeding	Non-breeding	Autumn migration	Spring migration
Ailsa Craig						0.00	0.00				
Buchan Ness to Collieston			0.70	1.00					1.00		
Caithness and Sutherland Peatlands	0.50	0.95									
Calf of Eday			0.70	0.90				1.00			
Canna and Sanday									0.00		
Cape Wrath			0.02	0.00							
Copinsay			0.70	0.90							
East Caithness Cliffs			0.70	1.00				1.00	1.00		
Fair Isle			0.70	0.90		0.80	0.70		1.00	0.60	0.40
Farne Islands								0.10	0.30		
Fetlar			0.70	0.90						0.60	0.40

SPA	Proportion of adult birds from each SPA that are present within the BDMPS population during the non-breeding period										
	Red-throated diver		Fulmar		Manx shearwater	Gannet		Cormorant	Shag	Arctic skua	
	Winter	Migration	Winter	Migration	Migration	Autumn migration	Spring migration	Non-breeding	Non-breeding	Autumn migration	Spring migration
Flamborough and Filey Coast			0.70	1.00		1.00	0.70				
Flannan Isles			0.02	0.00							
Forth Islands			0.70	1.00		1.00	0.70	0.60	1.00		
Foula	0.50	0.95	0.70	0.90					1.00	0.60	0.40
Fowlsheugh			0.70	1.00							
Grassholm						0.00	0.00				
Handa			0.02	0.00							
Hermaness, Saxa Vord and Valla Field	0.50	0.95	0.70	0.90		0.80	0.70		1.00		
Hoy	0.50	0.95	0.70	0.90						0.60	0.40
Isles of Scilly									0.00		
Lewis Peatlands	0.05	0.05									
Mingulay and Berneray			0.02	0.00					0.00		

SPA	Proportion of adult birds from each SPA that are present within the BDMPS population during the non-breeding period										
	Red-throated diver		Fulmar		Manx shearwater	Gannet		Cormorant	Shag	Arctic skua	
	Winter	Migration	Winter	Migration	Migration	Autumn migration	Spring migration	Non-breeding	Non-breeding	Autumn migration	Spring migration
Mointeach Scadabhaigh	0.05	0.05									
North Caithness Cliffs			0.70	0.90							
North Rona and Sula Sgeir			0.02	0.00		0.10	0.00				
Noss			0.70	0.90		0.80	0.70				
Orkney Mainland Moors	0.50	0.95									
Otterswick and Graveland	0.50	0.95									
Papa Westray										0.60	0.40
Rathlin Island			0.02	0.00							
Ronas Hill - North Roe and Tingon	0.50	0.95									
Rousay			0.70	0.90						0.60	
Rum	0.05	0.05			0.00						

SPA	Proportion of adult birds from each SPA that are present within the BDMPS population during the non-breeding period										
	Red-throated diver		Fulmar		Manx shearwater	Gannet		Cormorant	Shag	Arctic skua	
	Winter	Migration	Winter	Migration	Migration	Autumn migration	Spring migration	Non-breeding	Non-breeding	Autumn migration	Spring migration
Sheep Island								0.00			
Shiant Isles			0.02	0.00					0.00		
Skomer, Skokholm and the Seas off Pembrokeshire					0.00						
St Abb's Head to Fast Castle									1.00		
St Kilda			0.02	0.00	0.00	0.1	0.00				
Sule Skerry and Sule Stack						0.1	0.00		0.00		
Sumburgh Head			0.7	0.9							
Troup, Pennan and Lion's Head			0.7	1.00							
West Westray			0.70	0.90						0.60	0.40
Ynys Seiriol/Puffin Island								0.00			

SPA	Proportion of adult birds from each SPA that are present within the BDMPS population during the non-breeding period										
	Red-throated diver		Fulmar		Manx shearwater	Gannet		Cormorant	Shag	Arctic skua	
	Winter	Migration	Winter	Migration	Migration	Autumn migration	Spring migration	Non-breeding	Non-breeding	Autumn migration	Spring migration
Number of adult birds in BDMPS population	1,089	6,742	408,808	573,641	80	242,340	163,701	2,719	18,033	3,872	990
Number of all birds in BDMPS population	1,523	13,277	568,736	957,502	8,507	456,299	248,385	6,012	41,503	6,427	1,227
BDMPS population	NW North Sea	UK North Sea	UK North Sea	UK North Sea	UK North Sea	UK North Sea & Channel	UK North Sea & Channel	UK North-west North Sea	UK North-west North Sea	UK North Sea & Channel	UK North Sea & Channel

**Table 4.6: Proportion contribution of different UK SPA populations to seasonal BDMPS populations overlapping the Proposed Development (based on adult birds only), derived from Furness (2015) – Part 2**

SPA	Proportion contribution to BDMPS population												
	Great skua			Lesser black-backed gull			Herring gull	Great black-backed gull	Kittiwake		Razorbill		Puffin
	Autumn migration	Winter	Spring migration	Autumn migration	Winter	Spring migration	Non-breeding	Non-breeding	Autumn migration	Spring migration	Migration	Winter	Non-breeding
Ailsa Craig				0.50	0.10	0.50	0.05		0.01	0.01			
Alde-Ore Estuary				1.00	0.50	1.00	0.99						
Bowland Fells				0.50	0.10	0.50							
Buchan Ness to Collieston							0.99		0.60	0.60			
Calf of Eday								1.00	0.60	0.60			
Canna and Sanday							0.05		0.01	0.01			0.00
Cape Wrath									0.01	0.01	0.02	0.10	0.00
Copinsay								1.00	0.60	0.60			
Coquet Island													0.50
East Caithness Cliffs							0.99	1.00	0.60	0.60	1.00	0.30	0.15
Fair Isle	0.60	0.00	0.30						0.60	0.60	0.95	0.30	0.15

SPA	Proportion contribution to BDMPS population												
	Great skua			Lesser black-backed gull			Herring gull	Great black-backed gull	Kittiwake		Razorbill		Puffin
	Autumn migration	Winter	Spring migration	Autumn migration	Winter	Spring migration	Non-breeding	Non-breeding	Autumn migration	Spring migration	Migration	Winter	Non-breeding
Farne Islands									0.60	0.60			0.50
Fetlar	0.60	0.00	0.30										
Flamborough and Filey Coast							0.99		0.60	0.60	1.00	0.30	0.50
Flannan Isles									0.01	0.01	0.02	0.10	0.00
Forth Islands				1.00	0.50	1.00	0.99		0.60	0.60	1.00	0.30	0.50
Foula	0.60	0.00	0.30						0.60	0.60	0.95	0.30	0.15
Fowlsheugh							0.99		0.60	0.60	1.00	0.30	
Handa	0.00	0.00	0.00						0.01	0.01	0.02	0.100	
Hermaness, Saxa Vord and Valla Field	0.60	0.00	0.30						0.60	0.60			0.15
Hoy	0.60	0.00	0.30					1.00	0.60	0.60			0.15
Isles of Scilly				0.10	0.10	0.10		0.01					



SPA	Proportion contribution to BDMPS population												
	Great skua			Lesser black-backed gull			Herring gull	Great black-backed gull	Kittiwake		Razorbill		Puffin
	Autumn migration	Winter	Spring migration	Autumn migration	Winter	Spring migration	Non-breeding	Non-breeding	Autumn migration	Spring migration	Migration	Winter	Non-breeding
Lough Neagh and Lough Beg				0.50	0.10	0.50							
Marwick Head									0.60	0.60			
Mingulay and Berneray									0.01	0.01	0.02	0.10	0.00
Morecambe Bay					0.10	0.50	0.05						
North Caithness Cliffs									0.60	0.60	0.95	0.30	0.15
North Colonsay and Western Cliffs									0.01	0.01			
North Rona and Sula Sgeir								0.01	0.01	0.01	0.02	0.10	0.00
Noss	0.60	0.00	0.30						0.60	0.60			0.15
Rathlin Island				0.50	0.10	0.50	0.05		0.01	0.01	0.02	0.05	0.00
Ribble and Alt Estuaries				0.50	0.10	0.50							

SPA	Proportion contribution to BDMPS population												
	Great skua			Lesser black-backed gull			Herring gull	Great black-backed gull	Kittiwake		Razorbill		Puffin
	Autumn migration	Winter	Spring migration	Autumn migration	Winter	Spring migration	Non-breeding	Non-breeding	Autumn migration	Spring migration	Migration	Winter	Non-breeding
Ronas Hill - North Roe and Tingon	0.60	0.00	0.30										
Rousay									0.60	0.60			
Rum									0.01	0.01			
Shiant Isles									0.01	0.01	0.02	0.10	0.00
Skomer, Skokholm and the Seas off Pembrokeshire				0.30	0.10	0.30			0.01	0.01	0.02	0.05	0.00
St Abb's Head to Fast Castle							0.99		0.60	0.60	1.00	0.30	
St Kilda	0.00	0.00	0.00						0.01	0.01	0.02	0.10	0.00
Sule Skerry and Sule Stack													0.00
Sumburgh Head									0.60	0.60			

SPA	Proportion contribution to BDMPS population												
	Great skua			Lesser black-backed gull			Herring gull	Great black-backed gull	Kittiwake		Razorbill		Puffin
	Autumn migration	Winter	Spring migration	Autumn migration	Winter	Spring migration	Non-breeding	Non-breeding	Autumn migration	Spring migration	Migration	Winter	Non-breeding
Troup, Pennan and Lion's Head							0.99		0.60	0.60	1.00	0.30	
West Westray									0.60	0.60	0.95	0.30	
Number of adult birds in BDMPS population	11,436	125	5,718	144,012	37,302	135,412	210,289	32,070	480,815	375,815	302,314	106,183	199,974
Number of all birds in BDMPS population	19,556	143	8,485	209,007	2,011	197,483	466,511	91,399	829,937	627,816	591,874	218,622	231,957
BDMPS population	UK North Sea & Channel	UK North Sea & Channel	UK North Sea & Channel	UK North Sea & Channel	UK North Sea & Channel	UK North Sea & Channel	UK North Sea & Channel	UK North Sea	UK North Sea	UK North Sea	UK North Sea & Channel	UK North Sea & Channel	UK North Sea & Channel

### Migratory Seabird SPAs

- 4.6.16 Migratory seabirds from sites designated as SPAs and/or Ramsar sites in the areas of the UK that are distant from the Proposed Development have potential to interact with the Proposed Development during bi-annual migratory movements. Migratory pathways for these species have been considered for potential impacts from the Proposed Development.
- 4.6.17 Within this Stage 1 LSE Screening Report migratory seabird SPAs and Ramsar sites are limited to the north-east coast of Scotland and England as this is where the largest number of migrants will make Landfall. All impacts from the migratory Collision Risk Modelling (CRM) can be apportioned to the closest colonies and, therefore, to limit the scope of this Stage 1 LSE Screening Report, only the sites which are on the north-east coasts of Scotland and England are included.
- 4.6.18 Clarification from NatureScot was requested as to which sites should be screened in and screened out for migratory birds (see Table 1.1). NatureScot advised the use of “*Strategic study of collision risk for birds on migration and further development of the stochastic collision risk modelling tool Work Package 1: Strategic review of birds on migration in Scottish waters*” (Woodward et al., 2023).
- 4.6.19 Migratory birds can cross landmasses and, therefore, the straight-line distance between the Array Area is presented within the tables below. Similarly, only the distance between the Array Area and the SPA is presented as the impact “collision risk” can only occur within the Array Area and not the Export Cable Corridor.

### Marine SPAs

- 4.6.20 Marine SPAs are designated for several reasons, mainly to protect the seabirds foraging away from their colony during the breeding season and to protect aggregations of wintering birds.
- 4.6.21 NatureScot ‘Guidance Note 6: Guidance to support Offshore Wind Applications – Marine Ornithology Impact Pathways for Offshore Wind Developments’ (NatureScot, 2023) recommends applying a 15 km buffer around the Proposed Development to identify marine SPAs which have connectivity.

### Criterion 3

- 4.6.22 Given the large spatial scales defined in Criterion 2 for marine ornithological qualifying features of European sites, the Zol of key impacts associated with the Proposed Development (e.g. disturbance, displacement, environmental noise) are considered to occur within the areas defined in Criterion 2. No further European

sites with marine ornithological qualifying features have been screened in for further consideration under Criterion 3.

### Summary of Initial Screening of Sites Designated for Marine Ornithological Features

- 4.6.23 The initial screening process has identified 80 European sites, as shown in Figure 4.6, with marine ornithological features to be taken forward for detailed assessment of LSE in Section 5 of this report. This includes 72 colony SPA and/or Ramsar sites, 54 of which will be assessed during both the breeding and non-breeding season (Table 4.7) and 18 which only have connectivity during the non-breeding season (Table 4.8). No marine SPAs within 15 km of the Proposed Development were identified (Table 4.9). Finally, eight migratory seabird SPAs and/or Ramsar sites on the north-east coasts of Scotland and England were identified as the sites with the highest potential to be impacted by the Proposed Development (Table 4.10).
- 4.6.24 The European sites included within Table 4.7 are ordered by distance to the Proposed Development. This is initially done by straight line distance, however where a European site is on the west coast of the UK, the by-sea distance is used as the most relevant.
- 4.6.25 There are no distances presented within Table 4.8 as these European sites are included only within the non-breeding season where connectivity has been proposed within Furness (2015).

**Table 4.7: European Sites Designated for Marine Ornithological Features Taken Forward for the Assessment of LSE – Breeding Seabird Colony SPAs Assessed During the Breeding and Non-breeding Season**

European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Caithness and Sutherland Peatlands SPA	Red-throated diver Black-throated diver	46.4	1.7		N/A	None
North Caithness Cliffs SPA	Fulmar Guillemot Kittiwake Puffin Razorbill	37.9	4.2		N/A	None
East Caithness Cliffs SPA	Fulmar Guillemot Kittiwake Razorbill Herring gull Shag Cormorant Great black-backed gull	56.0	5.2		N/A	None

European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Copinsay SPA	Fulmar Guillemot Great black-backed gull Kittiwake	27.9	14.4		N/A	None
Auskerry SPA	Arctic tern Storm petrel	28.5	17.2		N/A	None
Hoy SPA	Fulmar Great black-backed gull Great skua Guillemot Kittiwake Puffin	65.9	25.9		N/A	Red-throated diver (breeding) Seabird assemblage (breeding) component: • Arctic skua
Calf of Eday SPA	Great black-backed gull Fulmar Guillemot Kittiwake	52.1	38.0		N/A	Seabird assemblage (breeding) component: • Cormorant

European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Rousay SPA	Fulmar Guillemot Kittiwake	60.9	43.5		N/A	Arctic tern (breeding) Seabird assemblage (breeding) component: • Arctic skua
West Westray SPA	Fulmar Guillemot Kittiwake Razorbill	69.5	52.9		N/A	Arctic tern (breeding) Seabird assemblage (breeding) component: • Arctic skua
Marwick Head SPA	Guillemot Kittiwake	72.0	60.6		N/A	None
Fair Isle SPA	Fulmar Gannet Great skua Guillemot Kittiwake Puffin Razorbill	81.4	64.3		N/A	Arctic tern (breeding) Seabird assemblage (breeding) components: • Arctic skua • Shag



European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Sule Skerry and Sule Stack SPA	Gannet Guillemot Leach's storm petrel Puffin Storm petrel	131.4	93.3	N/A		Seabird assemblage (breeding) component: • Shag
Troup, Pennan and Lion's Head SPA	Fulmar Guillemot Kittiwake Razorbill	130.3	93.8	N/A		Seabird assemblage (breeding) components: • Herring gull
Cape Wrath SPA	Fulmar Guillemot Kittiwake Puffin Razorbill	161.2	96.6	N/A		None
Sumburgh Head SPA	Fulmar Guillemot Kittiwake	123.3	108.2	N/A		Arctic tern (breeding)
Handa SPA	Fulmar Great skua Kittiwake	166.3	117.9	187.2	159.3	Guillemot (breeding) Razorbill (breeding)

European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Foula SPA	Fulmar Great skua Guillemot Kittiwake Leach's storm petrel Puffin Razorbill	141.9	124.6		N/A	Arctic tern (breeding) Red-throated diver (breeding) Shag (breeding) Seabird assemblage (breeding) component: • Arctic skua
Buchan Ness to Collieston Coast SPA	Fulmar Guillemot Kittiwake	164.2	127.0		N/A	Seabird assemblage (breeding) components: • Herring gull • Shag
Mousa SPA	Storm petrel	139.4	127.2		N/A	Arctic tern (breeding)
Noss SPA	Fulmar Gannet Great skua Guillemot Kittiwake Puffin	157.7	142.2		N/A	None

European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
North Rona and Sula Sgeir SPA	Fulmar Gannet Kittiwake Leach's storm petrel Puffin Storm petrel	218.6	165.6		N/A	Guillemot (breeding) Seabird assemblage (breeding) components: • Great black-backed gull • Razorbill
Ramna Stacks and Gruney SPA	Leach's storm petrel	206.0	193.6		N/A	None
Fetlar SPA	Fulmar	208.3	188.0		N/A	Arctic tern (breeding)
Hermaness, Saxa Vord and Valla Field SPA	Fulmar Gannet Great skua Kittiwake Puffin	230.9	207.1		N/A	Red-throated diver (breeding) Seabird assemblage (breeding) components: • Guillemot • Shag

European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Fowlsheugh SPA	Fulmar Kittiwake	202.2	178.7	220.2	208.8	Guillemot (breeding) Seabird assemblage (breeding) components: <ul style="list-style-type: none"> <li>• Herring gull</li> <li>• Razorbill</li> </ul>
Priest Island (Summer Isles) SPA	Storm petrel	204.6	151.0	244.3	216.4	None
Shiant Isles SPA	Fulmar Kittiwake Puffin Razorbill	266.7	195.1	312.8	241.2	Razorbill (breeding) Shag (breeding) Seabird assemblage (breeding) component: <ul style="list-style-type: none"> <li>• Guillemot</li> </ul>
Forth Islands SPA	Fulmar Gannet Puffin Kittiwake	309.4	253.6	N/A		Arctic tern (breeding) Common tern (breeding) Roseate tern (breeding) <ul style="list-style-type: none"> <li>• Sandwich tern (breeding)</li> </ul>

European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Flannan Isles SPA	Fulmar Leach's storm petrel Kittiwake	321.1	257.6	N/A		Seabird assemblage (breeding) components: <ul style="list-style-type: none"> <li>• Guillemot</li> <li>• Puffin</li> </ul>
St Abb's Head to Fast Castle SPA	Kittiwake	327.2	286.6	N/A		Seabird assemblage (breeding) components: <ul style="list-style-type: none"> <li>• Guillemot</li> </ul>
Rum SPA	Manx shearwater	293.4	237.9	377.4	349.5	Red-throated diver (breeding) Seabird assemblage (breeding) components: <ul style="list-style-type: none"> <li>• Guillemot</li> <li>• Kittiwake</li> </ul>

European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
St Kilda SPA	Fulmar Gannet Great skua Leach's storm petrel Manx shearwater	390.3	318.3	437.7	365.7	Storm petrel (breeding) Puffin (breeding) Seabird assemblage (breeding) components: <ul style="list-style-type: none"> <li>• Guillemot</li> <li>• Kittiwake</li> <li>• Razorbill</li> </ul>
Mingulay and Berneray SPA	Fulmar	377.1	322.0	416.6	388.7	Razorbill (breeding) Seabird assemblage (breeding) components: <ul style="list-style-type: none"> <li>• Guillemot</li> <li>• Kittiwake</li> <li>• Puffin</li> <li>• Shag</li> </ul>

European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Rathlin Island SPA	Fulmar	449.7	397.5	578.3	550.4	Guillemot (breeding) Kittiwake (breeding) Razorbill (breeding) Seabird assemblage (breeding) components: <ul style="list-style-type: none"> <li>• Common gull</li> <li>• Herring gull</li> <li>• Lesser black-backed gull</li> <li>• Puffin</li> <li>• Shag</li> </ul>
Horn Head to Fanad Head SPA	Fulmar	504.9	450.2	597.8	569.9	Cormorant (breeding) Guillemot (breeding) Kittiwake (breeding) Razorbill (breeding) Shag (breeding)
Tory Island SPA	Fulmar	527.6	472.5	610.3	582.4	Puffin (breeding) Razorbill (breeding)

European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
West Donegal Coast SPA	Fulmar	545.9	490.8	630.2	603.5	Cormorant (breeding) Herring gull (breeding) Kittiwake (breeding) Razorbill (breeding) Shag (breeding)
Copeland Islands SPA	Manx shearwater	494.5	445.4	665.4	637.5	Arctic tern (breeding)
Outer Ards Ramsar Site	Manx shearwater	497.6	448.3	663.2	635.3	Arctic tern (breeding)
Lambay Island SPA	Fulmar	630.6	582.1	816.9	789.0	Cormorant (breeding) Guillemot (breeding) Herring gull (breeding) Kittiwake (breeding) Lesser black-backed gull (breeding) Puffin (breeding) Razorbill (breeding) Shag (breeding)



European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Clare Island SPA	Fulmar	725.4	670.4	828.2	800.3	Common gull (breeding) Guillemot (breeding) Kittiwake (breeding) Razorbill (breeding) Shag (breeding)
High Island, Inishshark and Davillaun SPA	Fulmar	749.0	694.0	843.6	815.7	Arctic tern (breeding)
Cruagh Island SPA	Manx shearwater	761.4	706.5	853.6	825.7	None
Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA	Manx shearwater	678.0	634.3	881.1	860.2	None

European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Cliffs of Moher SPA	Fulmar	779.9	726.0	936.5	908.6	Common gull (breeding) Guillemot (breeding) Kittiwake (breeding) Razorbill (breeding) Shag (breeding)
Kerry Head SPA	Fulmar	841.1	787.8	979.6	951.7	None
Saltee Islands SPA	Fulmar	785.9	737.8	991.4	963.5	Cormorant (breeding) Gannet (breeding) Guillemot (breeding) Herring gull (breeding) Kittiwake (breeding) Lesser black-backed gull (breeding) Puffin (breeding) Razorbill (breeding) Shag (breeding)
Dingle Peninsula SPA	Fulmar	869.4	815.6	992.0	964.1	None

European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Skomer, Skokholm and the Seas off Pembrokeshire SPA	Manx shearwater	801.4	757.2	994.5	966.7	Lesser black-backed gull (breeding) Puffin (breeding) Storm petrel (breeding) Seabird assemblage (breeding) components: <ul style="list-style-type: none"> <li>• Guillemot</li> <li>• Kittiwake</li> <li>• Razorbill</li> </ul>
Grassholm SPA	Manx shearwater	807.9	763.15	1,001.3	973.4	Gannet (breeding)

European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Blasket Islands SPA	Fulmar Manx shearwater	902.4	848.3	1,021.6	993.7	Arctic tern (breeding) Herring gull (breeding) Kittiwake (breeding) Lesser black-backed gull (breeding) Puffin (breeding) Razorbill (breeding) Shag (breeding) Storm petrel (breeding)
Puffin Island SPA	Fulmar Manx shearwater	925.6	871.8	1,053.9	1,026.0	Lesser black-backed gull (breeding) Puffin (breeding) Razorbill (breeding) Storm petrel (breeding)

European site	Qualifying marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Straight-line distance to the Proposed Development (km)	By-sea distance to Array Area (km)	By-sea distance to Proposed Development (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Skelligs SPA	Fulmar Manx shearwater	935.0	881.2	1,061.1	1,033.2	Gannet (breeding) Guillemot (breeding) Kittiwake (breeding) Puffin (breeding) Storm petrel (breeding)
Deenish Island and Scariff Island SPA	Fulmar Manx shearwater	928.8	875.3	1,070.6	1,042.7	Arctic tern (breeding) Lesser black-backed gull (breeding) Storm petrel (breeding)

**Table 4.8: European Sites Designated for Marine Ornithological Features Taken Forward for the Assessment of LSE – Breeding Seabird Colony SPAs Assessed During Non-Breeding Season Only**

European site	Qualifying marine ornithological features identified through initial screening of sites	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Orkney Mainland Moors SPA	Red-throated diver	None
Papa Westray (North Hill and Holm) SPA	Arctic skua	Arctic tern (breeding)
Ronas Hill – North Roe and Tingon SPA	Great skua Red-throated diver	None
Otterswick and Graveland SPA	Red-throated diver	None
Fetlar SPA	Arctic skua Great skua	Arctic tern (breeding)
Lewis Peatlands SPA	Red-throated diver	Black-throated diver (breeding)
Canna and Sanday SPA	Herring gull Kittiwake	Seabird assemblage (breeding) components: <ul style="list-style-type: none"> <li>• Guillemot</li> <li>• Puffin</li> <li>• Shag</li> </ul>
St Abb’s Head to Fast Castle SPA	Herring gull Razorbill Shag	Seabird assemblage (breeding) components: <ul style="list-style-type: none"> <li>• Guillemot</li> </ul>
Mointeach Scadabhaigh SPA	Red-throated diver	Red-throated diver (breeding)
Flannan Isles SPA	Razorbill	None

European site	Qualifying marine ornithological features identified through initial screening of sites	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Farne Islands SPA	Cormorant Kittiwake Puffin Shag	Arctic tern (breeding) Common tern (breeding) Guillemot (breeding) Roseate tern (breeding) Sandwich tern (breeding)
Forth Islands SPA	Lesser black-backed gull Cormorant Shag Herring gull Razorbill	Arctic tern (breeding) Common tern (breeding) Roseate tern (breeding) Sandwich tern (breeding)
North Colonsay and Western Cliffs SPA	Kittiwake	Seabird assemblage (breeding) components: • Guillemot
Coquet Island SPA	Puffin	Arctic tern (breeding) Common tern (breeding) Roseate tern (breeding) Sandwich tern (breeding) Seabird assemblage (breeding) components: • Black-headed gull
Flamborough and Filey Coast SPA	Fulmar Gannet Herring gull Kittiwake	None

European site	Qualifying marine ornithological features identified through initial screening of sites	Additional qualifying marine ornithological features (not screened in under Criterion 2)
	Puffin Razorbill	
Lough Neagh and Lough Beg SPA	Lesser black-backed gull	Common tern (breeding)
Bowland Fells SPA	Lesser black-backed gull	None
Ailsa Craig SPA	Gannet Herring gull Kittiwake Lesser black-backed gull	Seabird assemblage (breeding) components: • Guillemot
Morecambe Bay and Duddon Estuary SPA	Herring gull	Common tern (breeding) Lesser black-backed gull (breeding) Little tern (breeding) Sandwich tern (breeding)
Ribble and Alt Estuaries SPA	Lesser black-backed gull	Common tern (breeding) Black-headed gull (breeding)
Cruagh Island SPA	Manx shearwater	Barnacle Goose
Alde-Ore Estuary SPA	Herring gull Lesser black-backed gull	Little tern (breeding) Sandwich tern (breeding)
Isles of Scilly SPA	Great black-backed gull Lesser black-backed gull	Shag Storm petrel Cormorant



**Table 4.9: European Sites Designated for Marine Ornithological Features Taken Forward for the Assessment of LSE – Marine SPAs**

European site	Relevant marine ornithological features identified through initial screening of sites	Season assessed	Straight-line distance to Proposed Development (km)	Other marine ornithology qualifying features
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No marine SPAs within 15 km of Proposed Development, however some marine SPAs are included within the migratory seabird SPA assessment (Table 4.10)

**Table 4.10: European Sites Designated for Marine Ornithological Features Taken Forward for the Assessment of LSE – Migratory Seabird SPAs**

European site	Relevant marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
North Orkney SPA	Great northern diver <i>Gavia immer</i> Red-throated diver Slavonian grebe <i>Podiceps auritus</i> Velvet scoter <i>Melanitta fusca</i>	46.9	None
Scapa Flow SPA	Black-throated diver Great northern diver Red-throated diver Shag Eider Long-tailed duck <i>Clangula hyemalis</i> Red-breasted merganser <i>Mergus serrator</i> Slavonian grebe	48.1	None

European site	Relevant marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
Moray Firth SPA	Great northern diver Red-throated diver Shag Common scoter <i>Melanitta nigra</i> Eider Goldeneye Long-tailed duck Red-breasted merganser Scaup <i>Aythya marila</i> Slavonian grebe Velvet scoter	140.5	None
East Mainland Coast, Shetland SPA	Great northern diver Red-throated diver Slavonian grebe	175.1	None
Inner Moray Firth SPA and Ramsar site	Cormorant Common tern Red-breasted merganser Scaup	192.2	None
Firth of Tay and Eden Estuary SPA and Ramsar site	Common scoter Eider Long-tailed duck Red-breasted merganser Velvet scoter	277.0	Little tern (breeding)

European site	Relevant marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
	Cormorant		
Outer Firth of Forth and St Andrews Bay Complex SPA	Red-throated diver Shag Little gull Eider Slavonian grebe Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Common scoter</li> <li>• Goldeneye</li> <li>• Long-tailed duck</li> <li>• Red-breasted merganser</li> <li>• Velvet scoter</li> </ul>	301.8	Arctic tern (breeding) Common tern (breeding)  Seabird assemblage (breeding) components: <ul style="list-style-type: none"> <li>• Guillemot</li> <li>• Herring gull</li> <li>• Kittiwake</li> <li>• Puffin</li> </ul> Seabird assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Black-headed gull</li> <li>• Common gull</li> <li>• Guillemot</li> <li>• Herring gull</li> <li>• Kittiwake</li> <li>• Razorbill</li> </ul>
Firth of Forth SPA and Ramsar Site	Red-throated diver Slavonian grebe Waterfowl assemblage (non-breeding): <ul style="list-style-type: none"> <li>• Cormorant</li> <li>• Common scoter</li> </ul>	321.1	Sandwich tern (breeding)

European site	Relevant marine ornithological features identified through initial screening of sites	Straight-line distance to Array Area (km)	Additional qualifying marine ornithological features (not screened in under Criterion 2)
	<ul style="list-style-type: none"> <li>• Long-tailed duck</li> <li>• Red-breasted merganser</li> <li>• Velvet scoter</li> </ul>		

Ayre Offshore Wind Farm Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report

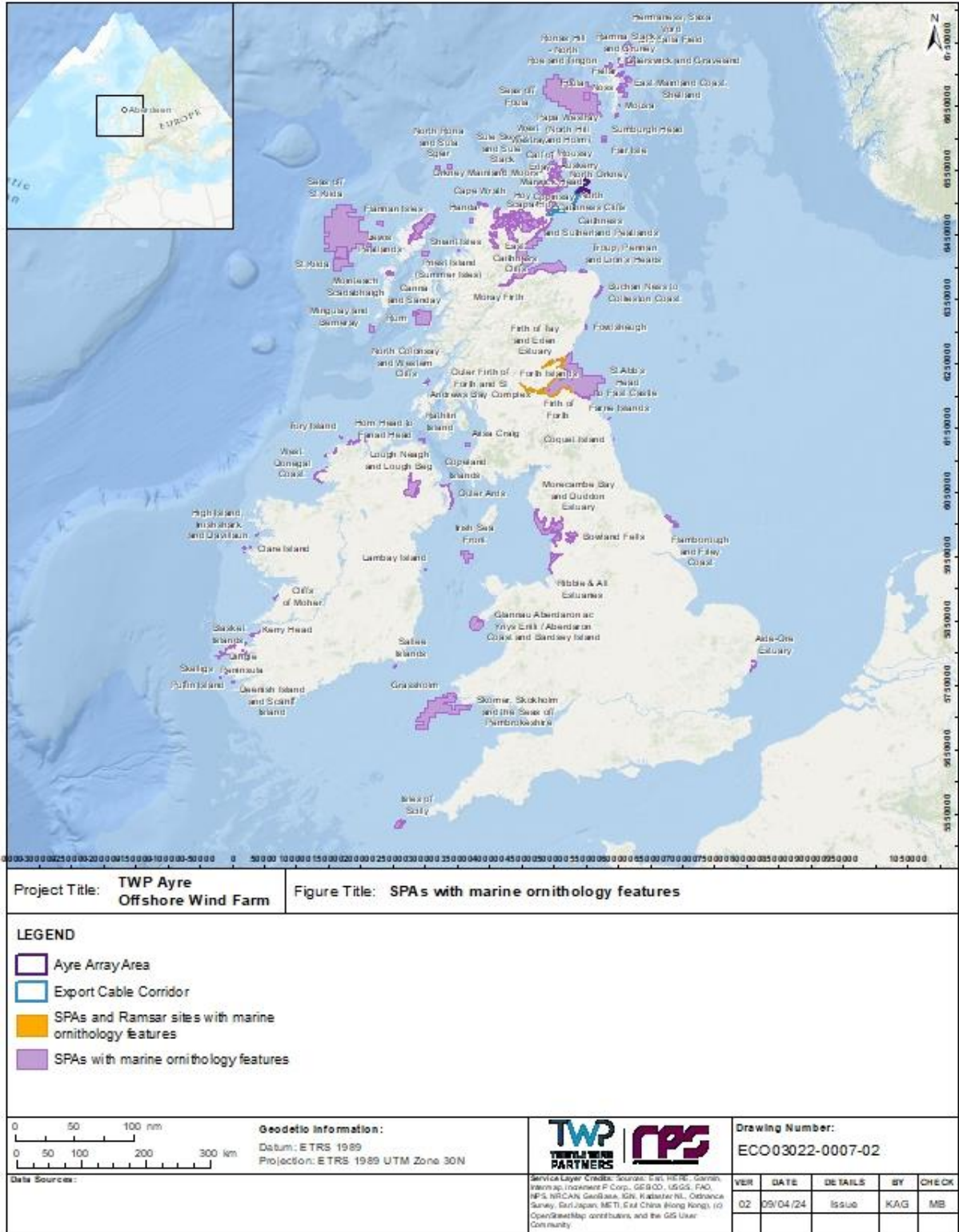


Figure 4.6: European Sites Designated for Marine Ornithology Features to be Taken Forward for Assessment of LSE

## 4.7 Sites Designated for Onshore Ornithological Features

### Initial Identification for Onshore Ornithological Features

- 4.7.1 The following sections detail the results of the process to identify European sites with relevant onshore ornithological features to be taken forward to detailed assessment of LSE in Section 5.
- 4.7.2 Screening will consider all onshore species with the potential to be impacted by the Proposed Development. This is predominately via the impact pathway “migratory collision risk”, whereby onshore species migrate across oceans to move between their breeding and wintering location, and vice versa.

#### *Criterion 1*

- 4.7.3 There are no European sites with relevant onshore ornithological qualifying features which overlap with the Proposed Development. On this basis, no sites are screened in for further consideration for onshore ornithology for this criterion.

#### *Criterion 2*

- 4.7.4 There is potential for the activities associated with the Proposed Development to result in impacts on onshore ornithological qualifying features of European sites at a distance from the Proposed Development.
- 4.7.5 Birds are highly mobile species, which can migrate over wide areas. Birds present in offshore waters and potentially affected by the construction, O&M and decommissioning of the Proposed Development will be predominantly seabirds. However, there is potential that migratory onshore ornithological features undertaking their bi-annual migration could be impacted. These species have the potential to be present in the vicinity of the Proposed Development during the spring and autumn passage periods.
- 4.7.6 Based on the above, it is considered that the migratory SPAs and Ramsar sites which have the potential to be affected by the Proposed Development are those which include qualifying features which may fly through the area of the Proposed Development during migration. These species can be collectively termed “migratory waterbirds” with waterbirds defined for this report as waders, ducks, geese, swans and grebes.
- 4.7.7 Migratory waterbirds in sites designated as SPAs and/or Ramsar sites in the areas of the UK that are distant from the Proposed Development have potential to interact with the Proposed Development during bi-annual migratory movements. Migratory pathways and coastal, estuarine, and inland waterbody roost sites

for these species have been considered for potential impacts from the Proposed Development.

- 4.7.8 Within this Stage 1 LSE Screening Report migratory waterbird SPAs and Ramsar sites are limited to the north-east coast of Scotland and England as this is where the largest number of migrants will make Landfall. Clarification from NatureScot has been requested as part of the consultation as to which European sites should be screened in and screened out for migratory birds (see Table 1.1). NatureScot advised to consult the “*Strategic study of collision risk for birds on migration and further development of the stochastic collision risk modelling tool Work Package 1: Strategic review of birds on migration in Scottish waters*” (Woodward et al., 2023) to determine which European sites to screen in.

### Criterion 3

- 4.7.9 Given the large spatial scales defined in Criterion 2 for onshore ornithological qualifying features of European sites, the Zol of key impacts associated with the Proposed Development (e.g. disturbance, displacement, environmental noise) are considered to occur within the areas defined in Criterion 2. No further European sites with onshore ornithological qualifying features have been screened in for further consideration under Criterion 3.

### Summary of Initial Screening of Sites Designated for Onshore Ornithological Features

- 4.7.10 The initial screening process has identified 16 European sites with onshore ornithological features to be taken forward for detailed assessment of LSE in Section 5 of this report. Due to the timing of this Stage 1 LSE Screening Report, a long list of sites is presented which represent east coast Scottish and north-east coast English SPAs. This list of SPAs will be reviewed, and updated as necessary, when the full migratory CRM assessment is undertaken as part of the EIA and RIAA. Therefore, this list may be subject to change between the submission of the Stage 1 LSE Screening Report and the submission of the RIAA.
- 4.7.11 As discussed in paragraph 4.6.19, migratory birds can cross landmasses and therefore the straight-line distance between the Array Area is presented within the tables below. Similarly, only the distance between the Array Area and the SPA is presented as the impact “collision risk” can only occur within the Array Area and not the Export Cable Corridor.

**Table 4.11: European Sites Designated for Onshore Ornithological Features Taken Forward for the Assessment of LSE**

European site	Relevant onshore ornithological features identified through initial screening of sites	Distance to Array Area (km)
East Sanday Coast SPA and Ramsar site	Bar-tailed godwit <i>Limosa lapponica</i> Purple sandpiper <i>Calidris maritima</i> Turnstone <i>Arenaria interpres</i>	48.6
Switha SPA	Greenland barnacle goose <i>Branta leucopsis</i>	49.6
Caithness Lochs SPA and Ramsar site	Greenland white-fronted goose <i>Anser albifrons</i> Greylag goose <i>Anser anser</i> Whooper swan <i>Cygnus cygnus</i>	81.3
North Sutherland Coastal Islands SPA	Greenland barnacle goose	132.7
Loch of Strathbeg SPA and Ramsar site	Greylag goose Pink-footed goose <i>Anser brachyrhynchus</i> Svalbard barnacle goose Whooper swan Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Goldeneye <i>Bucephala clangula</i></li> <li>• Teal <i>Anas crecca</i></li> </ul>	139.2



European site	Relevant onshore ornithological features identified through initial screening of sites	Distance to Array Area (km)
Dornoch Firth and Loch Fleet SPA and Ramsar site	Bar-tailed godwit Greylag goose Wigeon <i>Anas penelope</i> Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Curlew <i>Numenius arquata</i></li> <li>• Dunlin <i>Calidris alpina</i></li> <li>• Oystercatcher <i>Haematopus ostralegus</i></li> <li>• Redshank <i>Tringa totanus</i></li> <li>• Scaup</li> <li>• Teal</li> </ul>	154.0
Moray and Nairn Coast SPA	Bar-tailed godwit Greylag goose Pink-footed goose Redshank Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Dunlin</li> <li>• Oystercatcher</li> <li>• Red-breasted merganser</li> <li>• Wigeon</li> </ul>	159.7
Ythan Estuary and Meikle Loch SPA and Ramsar site	Pink-footed goose Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Eider</li> <li>• Lapwing <i>Vanellus vanellus</i></li> <li>• Redshank</li> </ul>	170.2

European site	Relevant onshore ornithological features identified through initial screening of sites	Distance to Array Area (km)
Cromarty Firth SPA and Ramsar site	Bar-tailed godwit Whooper swan Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Curlew</li> <li>• Dunlin</li> <li>• Greylag goose</li> <li>• Knot <i>Calidris canutus</i></li> <li>• Oystercatcher</li> <li>• Pintail <i>Anas acuta</i></li> <li>• Red-breasted merganser</li> <li>• Redshank</li> <li>• Scaup</li> <li>• Wigeon</li> </ul>	177.7
Inner Moray Firth SPA and Ramsar site	Bar-tailed godwit Greylag goose Redshank Osprey Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Curlew</li> <li>• Goosander</li> <li>• Goldeneye</li> <li>• Oystercatcher</li> <li>• Teal</li> <li>• Wigeon</li> </ul>	192.2

European site	Relevant onshore ornithological features identified through initial screening of sites	Distance to Array Area (km)
Montrose Basin SPA and Ramsar site	Greylag goose Pink-footed goose Redshank Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Dunlin</li> <li>• Eider</li> <li>• Knot</li> <li>• Oystercatcher</li> <li>• Shelduck</li> <li>• Wigeon</li> </ul>	240.1
Firth of Tay and Eden Estuary SPA and Ramsar Site	Bar-tailed godwit Greylag goose Pink-footed goose Redshank Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Dunlin</li> <li>• Goldeneye</li> <li>• Goosander <i>Mergus merganser</i></li> <li>• Grey plover <i>Pluvialis squatarola</i></li> <li>• Icelandic black-tailed godwit <i>Limosa limosa</i></li> <li>• Oystercatcher</li> <li>• Sanderling <i>Calidris alba</i></li> <li>• Shelduck <i>Tadorna tadorna</i></li> </ul>	277.0

European site	Relevant onshore ornithological features identified through initial screening of sites	Distance to Array Area (km)
Lindisfarne Ramsar Site	Bar-tailed godwit Greylag goose Light-bellied brent goose <i>Branta berniclahrota</i> Redshank Ringed plover <i>Charadrius hiaticula</i> Wigeon	312.7

European site	Relevant onshore ornithological features identified through initial screening of sites	Distance to Array Area (km)
Firth of Forth SPA and Ramsar site	Bar-tailed godwit Golden plover Knot Pink-footed goose Redshank Shelduck Turnstone Waterfowl assemblage (non-breeding): <ul style="list-style-type: none"> <li>• Curlew</li> <li>• Dunlin</li> <li>• Eider</li> <li>• Goldeneye</li> <li>• Great crested grebe <i>Podiceps cristatus</i></li> <li>• Grey plover</li> <li>• Lapwing</li> <li>• Long-tailed duck</li> <li>• Mallard</li> <li>• Oystercatcher</li> <li>• Ringed plover</li> <li>• Scaup</li> <li>• Wigeon</li> </ul>	321.1

European site	Relevant onshore ornithological features identified through initial screening of sites	Distance to Array Area (km)
Lindisfarne SPA	Bar-tailed godwit Common scoter Dunlin Eider Golden plover Greylag goose Grey plover Light-bellied brent goose Long-tailed duck Red-breasted merganser Redshank Ringed plover Sanderling Shelduck Whooper swan Wigeon	336.8
Northumbria Coast SPA	Purple sandpiper Turnstone	396.1

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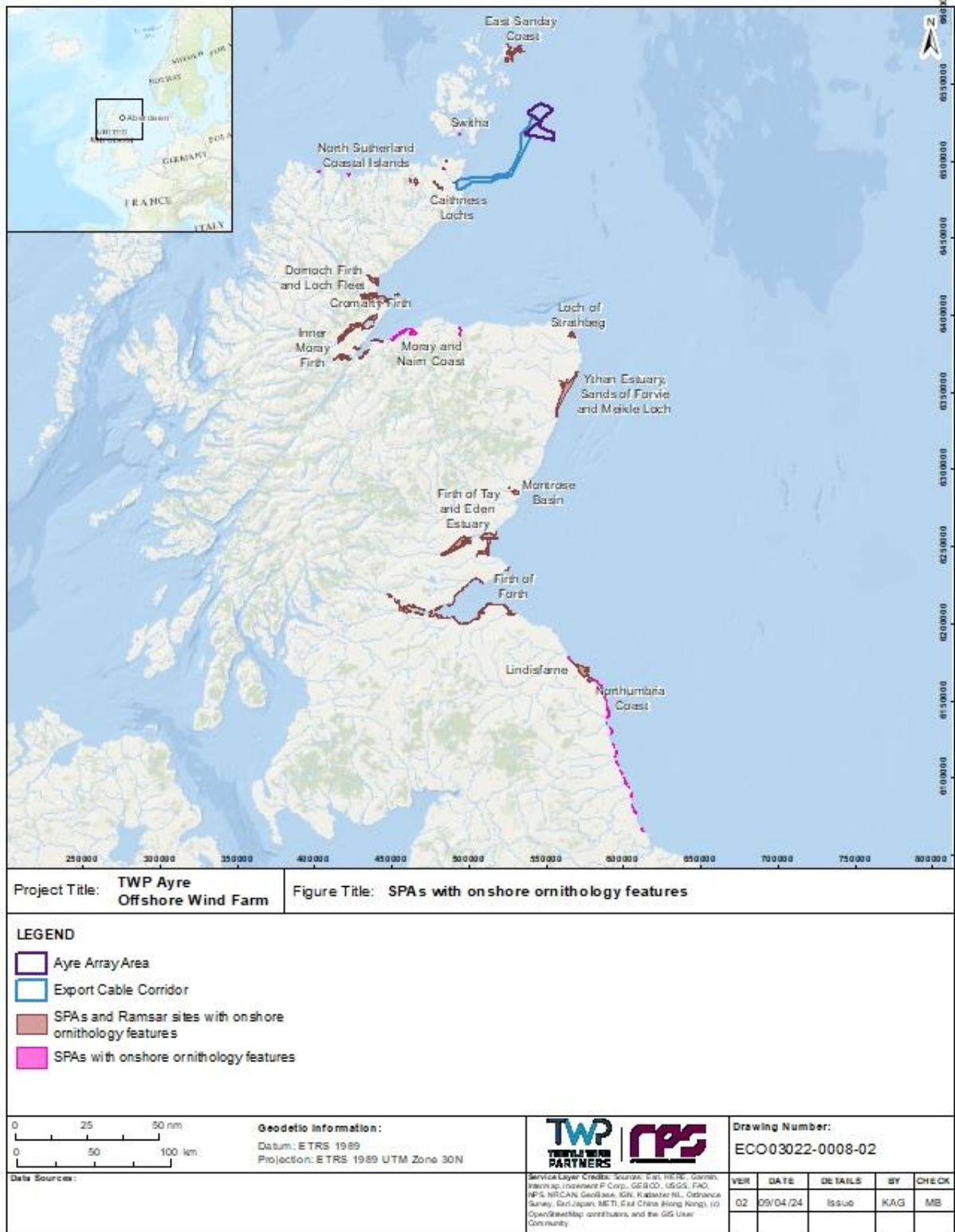


Figure 4.7: European Sites Designated for Onshore Ornithology Features to be Taken Forward for Assessment of LSE

## 5 Assessment of likely significant effect

### 5.1 Methodology

- 5.1.1 The assessment of LSE in the following sections is presented as a series of matrices setting out whether no LSE can be concluded for the relevant features of the European sites identified in Section 4.
- 5.1.2 The matrix approach used is considered to be a pragmatic approach and useful in defining the extent of impacts from the Proposed Development on the qualifying features of the European sites identified in Section 4, in relation to the sites' conservation objectives. It provides an audit trail for agreement with the statutory consultees on the scope of the HRA and the features and impacts to be taken forward into the AA for each site.
- 5.1.3 The lists of potential impacts considered in this section has been compiled using the experience and knowledge gained from previous offshore wind farm projects in UK waters, the pressures data available on Scotland's environment web for individual features of sites, NatureScot's 'guidance for plan-making bodies in Scotland' (NatureScot, 2015). The list of potential impacts has also been informed by the relevant sections of the Offshore Scoping Report.
- 5.1.4 The following matrix key is applicable to the matrices presented in the subsequent sections:
- ✓ - Potential for a LSE;
  - ✗ - No potential for an LSE;
  - C = Construction;
  - O&M = Operation and maintenance; and
  - D = Decommissioning.
- 5.1.5 With respect to the consideration of mitigation at the HRA Screening stage, in April 2018, the European Court of Justice issued a judgement in the People Over Wind and Sweetman case (Case C323/17) clarifying the stage in a HRA process when mitigation measures can be taken into account when assessing impacts on a European site. The ruling stated that *"...in order to determine whether it is necessary to carry out, subsequently, an Appropriate Assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site."*
- 5.1.6 NatureScot interprets the judgement to mean that it is those measures specifically intended to avoid or reduce harmful effects to a European site which cannot be considered at the LSE Screening stage (Scottish Natural Heritage, 2019). Commensurate with Case C323/17 (and the interpretation by NatureScot), measures intended to avoid or reduce harmful effects on a European site specifically



have not been considered when determining the potential for LSE. Measures intended specifically to protect European sites are however, considered distinct from those which may incidentally protect European sites to a degree, but which are intrinsic parts of the Proposed Development. For example, offshore wind farms typically require post-consent plans which cover the construction, and O&M phases and includes planning for accidental spills and biosecurity measures to limit the potential spread of Invasive Non-Native Species (INNS) (e.g. an Environmental Management Plan (EMP), and an INNS Management Plan (INNSMP)), irrespective of the possible effects on European sites. On the advice of NatureScot and the Scottish Ministers in relation to the Berwick Bank Offshore Wind Farm (Marine Scotland, 2021)), the Applicant has determined not to exclude such ‘incidental’ measures from the Proposed Development when undertaking screening for LSE.

## 5.2 Assessment of LSE for Annex I Habitat Features

5.2.1 As no European sites with Annex I habitat features were identified in the initial screening process (Section 4) to be taken forward for assessment of LSE, no further assessment is required.

## 5.3 Assessment of LSE for Annex II Diadromous Fish and Shellfish Features

5.3.1 The European sites identified in the initial screening process (Section 4) to be taken forward for assessment of LSE for Annex II diadromous fish and shellfish features are outlined below in Table 5.1.

**Table 5.1: SACs and Relevant Qualifying Features to be Taken Forward for Assessment of LSE for Annex II Diadromous Fish and Shellfish Features**

European site	Relevant Annex II diadromous fish and shellfish features
Berriedale and Langwell Waters SAC	Atlantic salmon
River Thurso SAC	Atlantic salmon
River Borgie SAC	Atlantic salmon Freshwater pearl mussel
River Naver SAC	Atlantic salmon Freshwater pearl mussel
River Spey SAC	Atlantic salmon Freshwater pearl mussel Sea lamprey
Evelix SAC	Freshwater pearl mussel

European site	Relevant Annex II diadromous fish and shellfish features
River Oykel SAC	Atlantic salmon Freshwater pearl mussel
Foinaven SAC	Freshwater pearl mussel
Ardvar and Loch a' Mhuilinn Woodlands SAC	Freshwater pearl mussel

*Pathways for LSE: Potential Impacts on Annex II Diadromous Fish and Shellfish Features*

5.3.2 This section provides a tabulated list of potential impacts and effects on Annex II diadromous fish and shellfish qualifying features that may result from activities associated with the Proposed Development (Table 5.2). These are the impacts which must be considered in the assessment of the potential for LSE in Table 5.3.

**Table 5.2: Pathways for LSE: Potential Impacts on Annex II Diadromous Fish Features and Freshwater Pearl Mussel**

Impact	Relevant Project Phase*			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
Temporary habitat loss and/or habitat disturbance	✓	✓	✓	<p><b>All phases</b></p> <p>There is potential for temporary habitat loss and/or habitat disturbance as a result of construction activities including seabed preparation (i.e. boulder and sand wave clearance), cable installation and the footprint of spud-can legs during jack-up vessel use.</p> <p>Temporary habitat loss/disturbance may also occur during the O&amp;M phase as a result of maintenance activities including cable repair and reburial and the use of jack-up vessels for repair of other Offshore Infrastructure.</p> <p>There is potential for temporary, direct habitat loss and/or disturbance due to decommissioning activities such as the removal of Offshore Infrastructure and the use of jack-up vessels for Offshore Infrastructure removal.</p> <p>This impact, however, is restricted to within the footprint of the Proposed Development Scoping Boundary and, as illustrated in Figure 4.1, there is no spatial overlap between the Proposed Development and any European sites designated for Annex II diadromous fish and shellfish species. On this basis, there is no potential for direct impacts to supporting habitats for Annex II diadromous fish and shellfish species within any European site.</p> <p>There is potential for Annex II diadromous fish and shellfish to be present in the waters in and around the Proposed Development and therefore be affected by temporary habitat loss/disturbance (e.g. effects on feeding grounds) during migration between natal</p>	✗

Impact	Relevant Project Phase*			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
				<p>rivers and marine habitats. However, due to the highly mobile nature of Annex II diadromous fish and shellfish features and the small magnitude of the impact when compared to the extent supporting habitats across the wider North Sea, significant impacts on foraging and food availability are not predicted. Therefore, there would be no barrier effects to diadromous fish reaching the designated sites as a result of this impact.</p> <p><b>There is no spatial overlap between the Proposed Development Scoping Boundary and the SACs with Annex II diadromous fish and shellfish features. This impact is screened out for all SACs.</b></p>	
Long term habitat loss	✓	✓	✓	<p><b>All phases</b></p> <p>There is the potential for long term habitat loss to occur in the construction phase, as a result of the installation of Offshore Infrastructure, scour protection, and cable protection on the seabed. This will persist into the O&amp;M phase and continue over the lifecycle of the Proposed Development. In the decommissioning phase, permanent habitat loss will occur under any Offshore Infrastructure that is left <i>in situ</i>, such as cable and scour protection, although the decommissioning plan has not yet been defined. This is however not relevant for the Proposed Development as long term habitat loss will only occur within the Scoping Boundary and there are no designated sites with Annex II diadromous fish and shellfish which overlap with the Scoping Boundary.</p> <p><b>There is no spatial overlap between the Proposed Development and the SACs with Annex II diadromous fish and shellfish features. This impact is screened out for all SACs.</b></p>	✗

Impact	Relevant Project Phase*			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
Increased Suspended Sediment Concentrations (SSCs) and associated deposition	✓	✓	✓	<p><b>All phases</b></p> <p>There is potential for increased SSCs and associated deposition as a result of activities in all three phases. In the construction phase, these include seabed preparation, foundation installation, and cable installation activities. In the O&amp;M phase, these include cable repair and reburial. Finally, in the decommissioning phase, these activities include removal of Offshore Infrastructure.</p> <p>The spatial extent of any increases in SSC will be restricted to within the boundary of the Proposed Development and the surrounding area (i.e. within a few kilometres of the Scoping Boundary) and will be intermittent and reversible. For the purposes of this LSE Screening, a precautionary ZoI of 20 km from the Proposed Development has been used for indirect effects from increases in SSC.</p> <p><b>All SACs are located well outside the ZoI for increases in SACs and associated sediment deposition (the closest is 46.6 km from the Proposed Development). The impact is screened out for all SACs.</b></p>	✗
Subsea noise impacting fish and shellfish	✓	✓	✓	<p><b>Construction phase</b></p> <p>Subsea noise produced during all three phases of the Proposed Development could cause behavioural disturbance, injury, or barriers to migration for diadromous fish. In the construction phase, noise sources include piling, UXO clearance, site-investigation surveys, and activities such as jack-up vessel use, cable laying, and cable cutting. The ZoI for subsea noise will be determined for the EIA through subsea noise modelling and therefore, at this stage of the development process, the potential for LSE on any Annex II features of European sites as a result of</p>	✓ (construction phase only)

Impact	Relevant Project Phase*			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
				<p>subsea noise arising from construction activities cannot be excluded.</p> <p><b>There is potential for LSE on Annex II diadromous fish and shellfish qualifying features of European sites as a result of subsea noise generated from piling during the construction phase of the Proposed Development. This impact is screened in.</b></p> <p><b>O&amp;M phase</b></p> <p>In the O&amp;M phase, subsea noise could be produced by Wind Turbine operation and ‘snapping’ noise produced by dynamic cables and mooring lines as they are moved in the water column by currents. The effects of subsea noise from operational OWFs is poorly researched in comparison to other noise sources (such as piling and UXO), however recent publications have suggested that this impact should be considered within EIAs and Cumulative Effects Assessments (CEA) of offshore projects (Mooney <i>et al.</i>, 2020, Risch <i>et al.</i>, 2023a, Stober and Thomsen, 2021, Svendsen <i>et al.</i>, 2022, Tougaard <i>et al.</i>, 2020).</p> <p>Operational Wind Turbines emit very low frequency and low sound pressure level noise that is likely to be within the natural range in variation for baseline noise (Norro <i>et al.</i>, 2011, Andersson <i>et al.</i>, 2011). Similarly, subsea noise generated from O&amp;M vessels is likely to be at a low level and effects would only occur if fish remain within the immediate vicinity of the vessel (i.e. within metres) for a number of hours.</p> <p><b>There is no potential for LSE on Annex II diadromous fish and shellfish qualifying features of European sites as a result of</b></p>	

Impact	Relevant Project Phase*			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
				<p><b>subsea noise during the O&amp;M phase of the Proposed Development. This impact is screened out.</b></p> <p><b>Decommissioning phase</b> In the decommissioning phase, subsea noise sources include jack-up vessel use and Offshore Infrastructure removal. The impact of subsea noise in this phase is likely to be similar to the O&amp;M phase and of a much lower magnitude to the construction phase as there will be no piling.</p> <p><b>There is no potential for LSE on Annex II diadromous fish and shellfish qualifying features of European sites as a result of subsea noise during the decommissioning phase of the Proposed Development. This impact is screened out.</b></p>	
Introduction of artificial habitat and subsequent colonisation of hard structures	x	✓	x	<p><b>O&amp;M phase</b> Artificial, hard structures, such as foundations, scour protection, and cable protection, will be installed during the construction phase and persist throughout the O&amp;M phase. These are expected to be colonised by a range of species, which may cause localised increases in biodiversity.</p> <p>These structures may also facilitate the spread of INNS. The hard substrates introduced as part of the Proposed Development would not result in the creation of new connectivity routes or "stepping-stones" for INNS that were previously absent. There is already a potential for marine INNS to occur due to the presence of other marine infrastructure including oil and gas infrastructure, offshore wind farms and tidal energy test sites within the North Sea, it is considered that there is no additional risk posed by the Proposed</p>	x

Impact	Relevant Project Phase*			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
				<p>Development. As there are no SACs designated for Annex II diadromous fish and shellfish that overlap with the Scoping Boundary of the Proposed Development there is no potential for the introduction/transfer of INNS.</p> <p><b>There is no spatial overlap between the Proposed Development and the SACs with Annex II diadromous fish and shellfish features. This impact is screened out.</b></p>	
Impacts to fish and shellfish due to Electromagnetic Fields (EMF)	✗	✓	✗	<p><b>O&amp;M phase</b></p> <p>The presence of unburied cables (such as dynamic cabling) may emit EMFs. These additional EMFs could have an impact on fish and shellfish species, such as impaired navigational ability, particularly in shallow nearshore waters (Gill and Bartlett, 2010). Without further, more detailed, assessment, the potential for LSE on Annex II features of European sites as a result of EMF from subsea cabling cannot be ruled out.</p> <p><b>There is potential for LSE on Annex II diadromous fish and shellfish qualifying features as a result of EMF during the O&amp;M phase of the Proposed Development. This impact is screened in.</b></p>	✓



### *Assessment of LSE for Annex II Diadromous Fish and Shellfish Features*

- 5.3.3 Table 5.3 presents the results of the LSE assessment as a result of the Proposed Development on relevant qualifying features of the SACs identified in Table 5.1. These assessments are made in the absence of mitigation measures specifically intended to avoid or reduce harmful effects to a European site. The footnotes to the following tables provide a brief assessment to support the screening in or out of each of the LSEs on the identified SAC features.

#### LSE In-Combination

- 5.3.4 The LSE test requires consideration of the Proposed Development alone and/or in-combination with other plans and projects. Therefore, it is not necessary at the LSE stage to consider sites/features for which an LSE ‘alone’ has already been identified, as in-combination effects will be considered at the AA. The focus at this stage should be to identify sites/features for which no LSE alone was concluded, but there is potential for a LSE in-combination with other plans and projects (e.g. due to wide foraging ranges resulting in a species interacting with a large number of projects).
- 5.3.5 Given the highly precautionary method for site selection applied during this Screening assessment, it is considered that the consolidation of information regarding external plans and projects would not likely result in additional European sites or new effect pathways being identified for the Screening assessment.
- 5.3.6 For diadromous fish species, the potential for LSE alone is identified for all sites with the potential to be affected, therefore effects in-combination will be considered at AA.

Table 5.3: LSE Matrix for SACs with Annex II Diadromous Fish and Freshwater Pearl Mussel Features

European site and relevant qualifying features	Temporary habitat loss and/or habitat disturbance			Long term habitat loss			Increased SSCs and associated deposition			Subsea noise impacting fish and shellfish			Introduction of artificial habitat and subsequent colonisation of hard structures			Impacts to fish and shellfish due to EMF		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>Berriedale and Langwell Waters SAC</b>																		
Atlantic salmon	x a	x a	x a	x b	x b	x b	x c	x c	x c	✓ d	x d	x d		x e			✓ f	
<b>River Thurso SAC</b>																		
Atlantic salmon	x a	x a	x a	x b	x b	x b	x c	x c	x c	✓ d	x d	x d		x e			✓ f	
<b>River Borgie SAC</b>																		
Atlantic salmon	x a	x a	x a	x b	x b	x b	x c	x c	x c	✓ d	x d	x d		x e			✓ f	
Freshwater pearl mussel	x a	x a	x a	x b	x b	x b	x c	x c	x c	✓ d	x d	x d		x e			✓ f	
<b>River Naver SAC</b>																		
Atlantic salmon	x a	x a	x a	x b	x b	x b	x c	x c	x c	✓ d	x d	x d		x e			✓ f	
Freshwater pearl mussel	x a	x a	x a	x b	x b	x b	x c	x c	x c	✓ d	x d	x d		x e			✓ f	

European site and relevant qualifying features	Temporary habitat loss and/or habitat disturbance			Long term habitat loss			Increased SSCs and associated deposition			Subsea noise impacting fish and shellfish			Introduction of artificial habitat and subsequent colonisation of hard structures			Impacts to fish and shellfish due to EMF		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>River Spey SAC</b>																		
Atlantic salmon	x a	x a	x a	x b	x b	x b	x c	x c	x c	✓ d	x d	x d		x e			✓ f	
Freshwater pearl mussel	x a	x a	x a	x b	x b	x b	x c	x c	x c	✓ d	x d	x d		x e			✓ f	
Sea lamprey	x a	x a	x a	x b	x b	x b	x c	x c	x c	✓ d	x d	x d		x e			✓ f	
<b>Evelix SAC*</b>																		
Freshwater pearl mussel	x a	x a	x a	x b	x b	x b	x c	x c	x c	✓ d	x d	x d		x e			✓ f	
<b>River Oykel SAC</b>																		
Atlantic salmon	x a	x a	x a	x b	x b	x b	x c	x c	x c	✓ d	x d	x d		x e			✓ f	
Freshwater pearl mussel	x a	x a	x a	x b	x b	x b	x c	x c	x c	✓ d	x d	x d		x e			✓ f	

European site and relevant qualifying features	Temporary habitat loss and/or habitat disturbance			Long term habitat loss			Increased SSCs and associated deposition			Subsea noise impacting fish and shellfish			Introduction of artificial habitat and subsequent colonisation of hard structures			Impacts to fish and shellfish due to EMF		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>Foinaven SAC*</b>																		
Freshwater pearl mussel	x a	x a	x a	x b	x b	x b	x c	x c	x c	✓ d	x d	x d		x e			✓ f	
<b>Ardvar and Loch a' Mhuilinn Woodlands SAC*</b>																		
Freshwater pearl mussel	x a	x a	x a	x b	x b	x b	x c	x c	x c	✓ d	x d	x d		x e			✓ f	

The text below explains the conclusion of whether LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✖ symbol is included and highlighted green. Where effects are not applicable to a particular feature they are greyed out.

**\*Note:** This site is only designated for freshwater pearl mussel and no diadromous fish species, however Atlantic salmon is known to be the host species freshwater pearl mussel (JNCC, 2024). There therefore may be an indirect effect to freshwater pearl mussel through effects on host species even if they are not a designated feature of the site.

**a: Temporary habitat loss and/or habitat disturbance** – This impact has been screened out for all the European sites considered (Table 5.2) as there is no spatial overlap between the Proposed Development and any SACs with Annex II diadromous fish and freshwater pearl mussel features. It is concluded that there will be no LSE on the Annex II diadromous fish and freshwater pearl mussel features of all SACs from temporary habitat loss/disturbance during all phases.

**b: Long term habitat loss** – This impact has been screened out for all the European sites considered (Table 5.2) as there is no spatial overlap between the Proposed Development and any SACs with Annex II diadromous fish and freshwater pearl mussel features. It is concluded that there will be no LSE on the Annex II diadromous fish and freshwater pearl mussel features of all SACs from long term habitat loss during all phases.

**c: Increased SSCs and associated deposition** – This impact has been screened out for all the European sites considered (Table 5.2) as all SACs considered are located well outside the 20 km ZoI established for the indirect effects of SSC (the nearest SAC is 46.6 km from the Proposed Development). It is concluded that there will be no LSE on the Annex II diadromous fish and freshwater pearl mussel features of all SACs from increased SSCs and associated deposition during all phases.

**d: Subsea noise impacting fish and shellfish** – Construction activities, including pile driving activities and UXO clearance, have the greatest potential for disturbance, auditory injury and/or mortality to diadromous fish species. There is potential for migratory species to be present within, or transiting through, the Proposed Development and potential area of impact (injury and behavioural) from subsea noise during the construction phase. It is concluded that there will be an LSE on the Annex II diadromous fish and freshwater pearl mussel features of all SACs from subsea noise during the construction phase.

**e: Introduction of artificial habitat and subsequent colonisation of hard structures** – This impact has been screened out for all the European sites considered (Table 5.2) as there is no spatial overlap between the Proposed Development and any SACs with Annex II diadromous fish and freshwater pearl mussel features. It is concluded that there will be no LSE on the Annex II diadromous fish and freshwater pearl mussel features of all SACs from introduction of artificial habitat and subsequent colonisation of hard structures during all phases.

**f: Impacts to fish and shellfish due to EMF** – There is potential for migratory species to be present within or transiting through the Proposed Development and the ZoI for EMF from subsea electrical cabling. It is concluded there will be an LSE on the Annex II diadromous fish and freshwater pearl mussel features of all SACs with Annex II diadromous fish features from EMF during the O&M phase.

## 5.4 Assessment of LSE for Annex II Marine Mammal Features

5.4.1 The European sites identified in the initial screening process (Section 4) to be taken forward for assessment of LSE for Annex II marine mammal features are outlined below in Table 5.4.

**Table 5.4: SACs and Relevant Qualifying Features to be Taken Forward for Assessment of LSE for Annex II Marine Mammal Features**

European site	Relevant Annex II marine mammal features
<b>UK</b>	
Sanday SAC	Harbour seal
Faray and Holm of Faray SAC	Grey seal
Moray Firth SAC	Bottlenose dolphin
Inner Hebrides and the Minches SAC	Harbour porpoise
Southern North Sea SAC	Harbour porpoise
Skerries and Causeway SAC	Harbour porpoise
<b>The Netherlands</b>	
Doggersbank SAC	Harbour porpoise
<b>Germany</b>	
Doggerbank SCI	Harbour porpoise
Sylter Außenriff SCI	Harbour porpoise
SPA Östliche Deutsche Bucht SCI	Harbour porpoise
<b>Denmark</b>	
Gule Rev SAC	Harbour porpoise
Sydlige Nordsø SAC	Harbour porpoise
Store Rev SAC	Harbour porpoise
Skagens Gren og Skagerak SAC	Harbour porpoise
Vadehavet med Ribe Å, Tved Å og Varde Å vest for Varde SAC	Harbour porpoise
<b>Sweden</b>	
Kosterfjorden-Väderöfjorden SAC	Harbour porpoise

*Pathways for LSE: Potential Impacts on Marine Mammal Features*

- 5.4.2 This section provides a tabulated list of potential impacts and effects on Annex II marine mammal features that may result from activities associated with the Proposed Development (Table 5.5). These are the impacts which must be considered in the assessment of the potential for LSE in Table 5.5.

**Table 5.5: Pathways for LSE: Potential Impacts on Annex II Marine Mammal Features**

Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
Injury and disturbance from subsea noise generated during piling	✓	✗	✗	<p><b>Construction phase</b></p> <p><u>All Annex II marine mammals</u></p> <p>Impact piling during construction may result in hearing damage/auditory injury or behavioural disturbance/displacement (including barrier effects, whereby marine mammals may be excluded from the area) of marine mammals.</p> <p>The Zol for subsea piling noise will be determined for the EIA through underwater sound modelling which has yet to be undertaken. Therefore, at this stage of the development process, LSE on any Annex II features of European sites as a result of subsea noise generated during piling in the construction phase cannot be excluded.</p> <p><b>LSE on Annex II marine mammal features due to subsea noise generated during piling across the construction phase of the Proposed Development cannot be discounted. The impact is screened in.</b></p>	✓
Injury and disturbance from subsea noise generated during UXO clearance	✓	✗	✗	<p><b>Construction phase</b></p> <p><u>All Annex II marine mammals</u></p> <p>There may be a requirement for the clearance of UXOs during the construction phase of the Proposed Development. This process may result in hearing damage/auditory injury or behavioural disturbance/displacement (including barrier effects) of marine mammals.</p> <p>The Zol for subsea noise arising from UXO clearance will be determined for the EIA through underwater sound modelling which</p>	✓



Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
				<p>has yet to be undertaken. Therefore, at this stage of the development process, LSE on any Annex II features of European sites as a result of subsea noise generated during UXO clearance in the construction phase cannot be excluded.</p> <p><b>LSE on Annex II marine mammal features due to subsea noise generated by UXO clearance across the construction phase of the Proposed Development cannot be discounted. The impact is screened in.</b></p>	
Injury and disturbance from subsea noise generated during site investigation surveys	✓	✓	✗	<p><b>Construction and O&amp;M phases</b>  <u>All Annex II marine mammals</u>                      Geophysical site-investigation surveys in the construction and O&amp;M phases have the potential to result in hearing damage/auditory injury or behavioural disturbance/displacement (including barrier effects, whereby marine mammals may be excluded from the area) of marine mammals.</p> <p>The Zol for subsea noise will be determined for the EIA through underwater sound modelling which has yet to be undertaken. However subsea noise arising from site investigation surveys is likely to be short term in duration limiting the potential for exposure. Any disturbance to marine mammals associated with the small increase in vessel traffic/noise associated with these surveys would be assessed under the impact pathway below 'Injury and disturbance from subsea noise generated by vessel use and other noise producing activities'.</p> <p><b>There is no potential for LSE on Annex II marine mammal features due to subsea noise generated by site investigation surveys across</b></p>	✗

Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
				<b>the construction and O&amp;M phases of the Proposed Development. The impact is screened out.</b>	
Injury and disturbance from subsea noise generated by vessel use and other noise producing activities	✓	✓	✓	<p><b>All phases</b></p> <p>Increased subsea noise associated with vessel use and associated activities (e.g. dredging, trenching and rock placement) may result in disturbance of marine mammals in all phases of the Proposed Development. However, the extent of disturbance is likely to be spatially restricted within the Scoping Boundary and along the vessel routes.</p> <p><u>Harbour porpoise and bottlenose dolphin</u></p> <p>The ZOI for subsea noise will be determined for the EIA through underwater sound modelling which has yet to be undertaken. However, the nearest SAC for harbour porpoise is 178.5 km from the Proposed Development and for bottlenose dolphin is 61.5 km from the Proposed Development. The increase in subsea noise associated with vessel traffic will be small in the context of existing background levels. These species are also highly mobile nature. Furthermore, bottlenose dolphin is a predominantly coastal species and there were no bottlenose dolphin sightings in SCANS-IV (Gilles <i>et al.</i>, 2023, Hammond <i>et al.</i>, 2021) or during the first 21 months of the two-year site-specific aerial survey.</p> <p><b>There is no potential for LSE on Annex II harbour porpoise and bottlenose dolphin features due to subsea noise generated by vessel use and other noise producing activities across all phases of the Proposed Development. The impact is screened out.</b></p> <p><u>Grey seal and Harbour seal</u></p>	✓ (for Grey and Harbour Seal)

Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
				<p>Based on the foraging ranges of grey seals and harbour seals, and the proximity of the Proposed Development to European sites designated for these species (i.e. within 50 km), as well as the proximity to designated haul out sites for grey seal and harbour seal, an increase in vessel noise across all phases of the Proposed Development could impact upon the behaviour of these seals.</p> <p><b>LSE on Annex II grey seal and harbour seal features due to the subsea noise generated by vessel use and other noise producing activities impact across all phases of the Proposed Development cannot be discounted. The impact is screened in.</b></p>	
Injury and disturbance from subsea noise generated by Wind Turbine operation	✗	✓	✗	<p><b>O&amp;M phase</b></p> <p><u>All Annex II marine mammals</u></p> <p>In the O&amp;M phase, subsea noise could be produced by Wind Turbine operation and ‘snapping’ noise produced by dynamic cables and mooring lines as they are moved in the water column by currents. There is currently very limited research available regarding the impact of noise from floating Wind Turbine technology although a recent report by Risch <i>et al.</i> (2023b) found that during high winds the number of impulsive sounds from mooring related structures at the Kincardine and Hywind OWFs in Scotland increased. These impulses were generally of short duration and broadband (10 kHz to 48 kHz) (Risch <i>et al.</i>, 2023b) and will not result in the potential for a LSE.</p> <p>The Marine Management Organisation ((MMO), 2014) review of post-consent monitoring data from offshore wind farms generally found sound from operational Wind Turbines is low and the spatial extent of the potential impact on marine receptors is generally estimated</p>	✗

Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
				<p>to be small, with behavioural response only likely at ranges close to the Wind Turbines. This is supported by several published studies, which provide evidence that marine mammals are not displaced from operational OWFs and may even experience some benefits from OWFs. At the Horns Rev and Nysted OWFs in Denmark, long term monitoring showed that both harbour porpoise and harbour seal were sighted regularly within the operational OWF and, the populations had returned to levels that were comparable with the wider area within two years of operation. Other studies at Dutch and Danish OWFs (Lindeboom <i>et al.</i>, 2011) also suggest that harbour porpoise may be attracted to increased foraging opportunities within operating OWFs as a result of the ‘reef effect’ that can be caused by the introduction of new hard substrate into the marine environment.</p> <p><b>There is no potential for LSE on Annex II marine mammal features due to subsea noise generated by Wind Turbine operation across the O&amp;M phase of the Proposed Development. The impact is screened out.</b></p>	
Injury to marine mammals due to entanglement	✗	✓	✗	<p><b>O&amp;M phase</b></p> <p>As the PDE for the Proposed Development involves floating infrastructure, the presence of dynamic cables and anchor mooring lines may pose a risk of entanglement for marine mammals. This could be primary entanglement, (whereby the animals are entangled in the cables and mooring lines themselves) or secondary entanglement, (whereby they become entangled in lost and discarded fishing gear and marine debris which are stuck to the cables and mooring lines). Floating offshore technology is still in its infancy, so there are limited data available to assess this impact.</p>	✓ (for Harbour porpoise, Grey seal and Harbour seal)

Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
				<p><u>Harbour porpoise</u></p> <p>Although there is limited information on this impact it is possible that the mooring lines and any subsequently entangled fishing gear could result in hazardous conditions for harbour porpoise foraging offshore. The full extent of this risk will be determined following the finalisation of the PDE in subsequent stages of the EIA.</p> <p><b>LSE on Annex II harbour porpoise features due to risk of entanglement across the O&amp;M phase of the Proposed Development cannot be discounted. The impact is screened in.</b></p> <p><u>Bottlenose dolphin</u></p> <p>Bottlenose dolphin in this region of Scotland have a coastal distribution Hague <i>et al.</i> (2020) which would make it unlikely for them to interact with mooring lines and subsequently entangled fishing gear which would only be a risk within the Proposed Development Array Area. Furthermore, there were no bottlenose dolphin sightings in SCANS-IV (Gilles <i>et al.</i>, 2023, Hammond <i>et al.</i>, 2021) or during the first 20 months of the two-year site-specific aerial survey.</p> <p><b>There is no potential for LSE on Annex II bottlenose dolphin features due to entanglement across the O&amp;M phase of the Proposed Development. The impact is screened out.</b></p> <p><u>Grey seal and harbour seal</u></p> <p>Based on the foraging ranges of grey seals and harbour seals, and the proximity of the Proposed Development to European sites designated for these species (i.e. within 50 km), as well as the proximity to designated haul out sites for grey seal and harbour seal, it is possible that the mooring lines and any subsequently entangled</p>	

Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
				fishing gear could result in hazardous conditions for seals foraging offshore. The full extent of this risk will be determined following the finalisation of the PDE in subsequent stages of the EIA. <b>LSE on Annex II grey seal and harbour seal features due to risk of entanglement across the O&amp;M phase of the Proposed Development cannot be discounted. The impact is screened in.</b>	
Impact of EMF from subsea cables	✗	✓	✗	<p><b>O&amp;M phase</b></p> <p>Electrical cabling associated with the Proposed Development has the potential to emit localised EMFs. While the effects of EMF on fish and shellfish receptors are documented, there is no evidence of EMF related to marine renewable devices having any impact (beneficial or adverse) on marine mammals (Copping, 2018, Copping <i>et al.</i>, 2020). There is no evidence that seals can detect or respond to EMF, however some cetacean species may be sensitive and/or able to detect variations in magnetic fields (Normandeau Associates Inc <i>et al.</i>, 2011, Czech-Damal <i>et al.</i>, 2012, Hüttner <i>et al.</i>, 2022). Until recently, the Guiana dolphin <i>Sotalia guianensis</i>, found in Central and South American waters, was the only marine mammal species demonstrated to respond to EMFs (Czech-Damal <i>et al.</i>, 2013). The Guiana dolphin possess an electroreceptive system that uses the vibrissal crypts on their rostrum to detect electrical stimuli (Czech-Damal <i>et al.</i>, 2013). However, recent experimental evidence suggests that adult bottlenose dolphins possess many basic morphological similarities in their vibrissal crypts to Guiana dolphins and can perceive as equally low electrical fields (Hüttner <i>et al.</i>, 2022). The authors suggest that bottlenose dolphin use electroreception to detect benthic prey at short ranges and suggest that as this ability</p>	✗

Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
				<p>has now been observed in two dolphin species, it may be widespread within odontocetes (Hüttner <i>et al.</i>, 2022).  <u>Harbour porpoise and bottlenose dolphin</u></p> <p>As noted above there is potential for bottlenose dolphin, and potentially other cetaceans, to be sensitive to changes in EMF in their environment. The EMF emitted by the subsea cables associated with the Proposed Development will however will likely only be detectable within metres from the cabling. Due to the highly mobile nature of cetaceans as well as the localised nature of the impact with the nearest SAC designated for cetaceans is over 60 km away, therefore there is no potential for LSE to occur due to this impact.</p> <p><u>Grey seal and harbour seal</u></p> <p>As noted above, there is no evidence that seals can detect or respond to EMF.</p> <p><b>There is no potential for LSE on Annex II marine mammal features due to EMF from subsea cables across the O&amp;M phase of the Proposed Development. The impact is screened out.</b></p>	
Injury to marine mammals due to collision with vessels	✓	✓	✓	<p><b>All phases</b></p> <p><u>All Annex II marine mammals</u></p> <p>Increased vessel activity in comparison to background levels within all phases of the Proposed Development may result in vessel collisions with marine mammals. The extent of this potential disturbance will be spatially restricted to within the Scoping Boundary of the Proposed Development and along routes to local ports. However, the extent of area associated with a risk of vessel</p>	✗

Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
				collision is likely to be spatially restricted within the Scoping Boundary and along the vessel routes to ports.  <b>There is no potential for LSE on Annex II marine mammal features due to collision with vessels across all phases of the Proposed Development. The impact is screened out.</b>	
Effects on marine mammals due to changes in prey availability	✓	✓	✓	Changes in marine mammal prey abundance and distribution could occur in all phases of the Proposed Development, however they may be greatest in the construction phase, and may impact on the ability of marine mammals to forage in the vicinity of the Proposed Development. In particular, marine mammal prey may be affected by activities which may result in increased subsea noise levels or disturbance on the seabed (and cause increased SSCs).  <b>Construction phase</b> <u>All Annex II marine mammals</u> As noted above, any potential temporary changes to the fish community in the vicinity of the Proposed Development Array Area will be largest during the construction phase. This disturbance will not result in adverse effects to Annex II marine mammal features as the impacts on prey species will be limited in its spatial extent. However, subsea noise modelling for the Proposed Development is required to fully assess the extent of the effect subsea noise may have on prey species. At the time of writing, this modelling has not been completed, and will be undertaken during the EIA process.  <b>There is potential for LSE on Annex II marine mammal features due to changes in prey availability in the construction phase of the Proposed Development. The impact is screened in for the construction phase only.</b>	✓ (construction phase only)



Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
				<p><b>O&amp;M and decommissioning phases</b></p> <p><u>All Annex II marine mammals</u></p> <p>Potential impacts to prey species resulting in changes in prey availability will be much lower in the O&amp;M and decommissioning phases as there will not be any piling activity.</p> <p><b>There is no potential for LSE on Annex II marine mammal features due to changes in prey availability across the O&amp;M and decommissioning phases of the Proposed Development. The impact is screened out in the O&amp;M and decommissioning phases.</b></p>	

### *Assessment of LSE for Marine Mammal Features*

- 5.4.3 Table 5.6, Table 5.7 and Table 5.8 present the results of the LSE assessment as a result of the Proposed Development on relevant qualifying features of the SACs identified in Table 5.4. These assessments are made in the absence of mitigation measures specifically intended to avoid or reduce harmful effects to a European site. The footnotes to the following tables provide a brief assessment to support the screening in or out of each of the LSEs on the identified SAC features.

### *LSE In-Combination*

- 5.4.4 The LSE test requires consideration of the Proposed Development alone and/or in-combination with other plans and projects. Therefore, it is not necessary at the LSE stage to consider sites/features for which an LSE ‘alone’ has already been identified, as in-combination effects will be considered at the AA. The focus at this stage should be to identify sites/features for which no LSE alone was concluded, but there is potential for an LSE in-combination with other plans and projects (i.e. due to wide foraging ranges resulting in a species interacting with a large number of projects).
- 5.4.5 Given the highly precautionary method for site selection applied during this Screening assessment, it is considered that the consolidation of information regarding external plans and projects would not likely result in additional European sites or new effect pathways being identified for the Screening assessment.
- 5.4.6 For Annex II marine mammal features, the potential for LSE alone is identified for all sites with the potential to be affected, therefore effects in-combination will be considered at AA.

Table 5.6: LSE Matrix for UK SACs with Seal Qualifying Features

European site and relevant qualifying features	Injury and disturbance from subsea noise generated during piling			Injury and disturbance from subsea noise generated during UXO clearance			Injury and disturbance from subsea noise generated during site investigation surveys			Injury and disturbance from subsea noise generated by vessel use and other noise producing activities			Injury and disturbance from subsea noise generated by Wind Turbine operation			Injury to marine mammals due to entanglement			Impact of EMF from subsea cables			Injury to marine mammals due to collision with vessels			Effects on marine mammals due to changes in prey availability				
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D		
<b>Sanday SAC</b>																													
Harbour seal	✓ a			✓ b			x c	x c		✓ d	✓ d	✓ d		x e			✓ f				x g			x h	x h	x h	✓ i	x i	x i
<b>Faray and Holm of Faray SAC</b>																													
Grey seal	✓ a			✓ b			x c	x c		✓ d	✓ d	✓ d		x e			✓ f				x g			x h	x h	x h	✓ i	x i	x i

The text below explains the conclusion of whether LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green. Where effects are not applicable to a particular feature they are greyed out.

**a: Injury and disturbance from subsea noise generated during piling** – as discussed in Table 5.5, there is potential for grey seal feature of the Faray and Holm of Faray SAC and harbour seal feature of the Sanday SAC to occur within the ZoI (for both injury and disturbance) from subsea noise associated with piling during the construction phase. Overall, it is concluded that there is potential for LSE on grey seal and harbour seal features of their respective SACs due to this impact during the construction phase of the Proposed Development.

**b: Injury and disturbance from subsea noise generated during UXO clearance** – as discussed in Table 5.5, there is potential for the grey seal feature of the Faray and Holm of Faray SAC and the harbour seal feature of the Sanday SAC to occur within the ZoI (for both injury and disturbance) from subsea noise generated during UXO clearance during the construction phase. Overall, it is concluded that there is potential

for LSE on grey seal and harbour seal features of their respective SACs due to this impact during the construction phase of the Proposed Development.

**c: Injury and disturbance from subsea noise generated during site investigation surveys** - as discussed in Table 5.5, any subsea noise arising from site investigation surveys is likely to be of short-term duration per event. Overall, it is concluded that there is no potential for LSE on grey seal and harbour seal features of their respective SACs due to this impact during the construction and O&M phases of the Proposed Development.

**d: Injury and disturbance from subsea noise generated by vessel use and other noise producing activities** – as discussed in Table 5.5, there are grey seal and harbour seal haul out sites in proximity to the Proposed Development and the potential for seals to be foraging in the vicinity of the Proposed Development which could be disturbed as a result of vessels and other activities occurring within the Scoping Boundary. Overall, it is concluded that there is potential for LSE on grey seal and harbour seal features of their respective SACs due to this impact during all phases of the Proposed Development.

**e: Injury and disturbance from subsea noise generated by Wind Turbine operation** – as discussed in Table 5.5, subsea noise levels from operational Wind Turbines are predicted to be low, based on studies from other OWF projects. Although there is limited information on operational noise from floating Wind Turbines data is available that suggests that the impact is limited and within the range of current operational noise. Overall, it is concluded that there is no potential for LSE on grey seal and harbour seal features of their respective SACs due to this impact during the O&M phase of the Proposed Development.

**f: Injury to marine mammals due to entanglement**– as discussed in Table 5.5, primary and secondary entanglement could occur during the O&M phase, with secondary entanglement (i.e. from fishing gear snagging on floating Wind Turbine mooring lines) posing a greater risk. Data on secondary entanglement at floating Wind Turbines is scarce. Based on the known foraging ranges of grey seals and harbour seals there is potential that they will forage within the Proposed Development Array Area and therefore risk entanglement. There is considered to be potential for LSE on grey seal and harbour seal features of their respective SACs due to this impact during the O&M phase of the Proposed Development.

**g: Impact of EMF from subsea cables**– as discussed in Table 5.5, there is no evidence that seals can detect or respond to EMFs. Overall, there is considered to be no potential for LSE on grey seal and harbour seal features of their respective SACs due to this impact during the O&M phase of the Proposed development.

**h: Injury to marine mammals due to collision with vessels**– as discussed in Table 5.5, the increase in vessel traffic and activity associated with all phases of the Proposed Development is likely to be low in comparison to baseline levels. There is considered to be little potential of increased vessel traffic and activity resulting in a significant impact to grey seals and harbour seals in terms of collision risk. Overall, there is considered to be no potential for LSE on grey seal and harbour seal features of their respective SACs due to this impact across all phases of the Proposed Development.

**i: Effects on marine mammals due to changes in prey availability** – as discussed in Table 5.5, grey seal feature of the Faray and Holm of Faray SAC and harbour seal feature of the Sanday SAC are likely to be present within the Scoping Boundary and may forage within the area. Effects on prey fish populations will occur primarily in the construction phase of the Proposed Development as a result of an increase in underwater noise however this impact cannot be fully assessed until the Proposed Development site-specific noise modelling has been completed. The impact in the O&M and decommissioning phases will be much reduced as there will be no piling activity in these phases. Overall, there is considered to be potential for LSE on grey seal and harbour seal features of their respective SACs due to this impact during the construction phase of the Proposed Development only and this impact is screened out for the O&M and decommissioning phases.

**Table 5.7: LSE Matrix for UK SACs with Cetacean Qualifying Features within 300 km of the Proposed Development with Annex II Marine Mammal Features**

European site and relevant qualifying features	Injury and disturbance from subsea noise generated during piling			Injury and disturbance from subsea noise generated during UXO clearance			Injury and disturbance from subsea noise generated during site investigation surveys			Injury and disturbance from subsea noise generated by vessel use and other noise producing activities			Injury and disturbance from subsea noise generated by Wind Turbine operation			Injury to marine mammals due to entanglement			Impact of EMF from subsea cables			Injury to marine mammals due to collision with vessels			Effects on marine mammals due to changes in prey availability				
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O
<b>Moray Firth SAC</b>																													
Bottlenose dolphin	✓ a			✓ b			x c	x c		x d	x d	x d		x e			x e			x g			x h	x h	x h	✓ i	x i	x i	
<b>Inner Hebrides and the Minches SAC</b>																													
Harbour porpoise	✓ a			✓ b			x c	x c		x d	x d	x d		x e			✓ f			x g			x h	x h	x h	✓ i	x i	x i	
<b>Southern North Sea SAC</b>																													
Harbour porpoise	x a			x b			x c	x c		x d	x d	x d		x e			x f			x g			x h	x h	x h	x i	x i	x i	
<b>Skerries and Causeway SAC</b>																													
Harbour porpoise	x a			x b			x c	x c		x d	x d	x d		x e			x f			x g			x h	x h	x h	x i	x i	x i	
<b>10 transboundary sites</b>																													
Harbour porpoise	x a			x b			x c	x c		x d	x d	x d		x e			x f			x g			x h	x h	x h	x i	x i	x i	

The text below explains the conclusion of whether LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green. Where effects are not applicable to a particular feature they are greyed out.

**a: Injury and disturbance from subsea noise generated during piling** – as discussed in Table 5.5, there is potential for harbour porpoise feature of the Inner Hebrides and the Minches SAC and bottlenose dolphin feature of the Moray Firth SAC to occur within the ZoI (for both injury and disturbance) from subsea noise associated with piling during the construction phase. However, given the significant distance between the Proposed Development and the Southern North Sea SAC and the Skerries and Causeway SAC (i.e. both more than 390 km from the Proposed Development) as well as the nearest transboundary site (485.9 km), the Scoping Boundary is not considered important foraging grounds for individuals from these SACs. In addition, subsea noise from piling during construction will not result in significant effects, in terms of injury and disturbance, on the harbour porpoise features of these sites. Overall, it is concluded that there is potential for LSE on harbour porpoise and bottlenose dolphin features of the Inner Hebrides and the Minches SAC and Moray Firth SAC only due to this impact during the construction phase of the Proposed Development.

**b: Injury and disturbance from subsea noise generated during UXO clearance** – as discussed in Table 5.5, there is potential for harbour porpoise feature of the Inner Hebrides and the Minches SAC and the bottlenose dolphin feature of the Moray Firth SAC to occur within the ZoI (for both injury and disturbance) from subsea noise generated during UXO clearance during the construction phase. However, given the significant distance between the Proposed Development and the Southern North Sea SAC and the Skerries and Causeway SAC (i.e. both more than 390 km from the Proposed Development) as well as the nearest transboundary site (485.9 km), the Scoping Boundary is not considered important foraging grounds for individuals from these sites. In addition, subsea noise from UXO clearance during construction will not result in significant effects, in terms of injury and disturbance, on the harbour porpoise features of these SACs. Overall, it is concluded that there is potential for LSE on harbour porpoise, and bottlenose dolphin features of the Inner Hebrides and the Minches SAC and Moray Firth SAC only due to this impact during the construction phase of the Proposed Development.

**c: Injury and disturbance from subsea noise generated during site investigation surveys** - as discussed in Table 5.5, any subsea noise arising from site investigation surveys is likely to be of a short term duration per event. Additionally, given the significant distance between the Proposed Development and the Southern North Sea SAC and the Skerries and Causeway SAC (i.e. both more than 390 km from the Proposed Development) as well as the nearest transboundary site (485.9 km), the Scoping Boundary is not considered important foraging grounds for individuals from these sites. Therefore, the likelihood of harbour porpoise and bottlenose dolphin to occur within the ZoI (for both injury and behavioural disturbance) from subsea noise generated during site investigation surveys is very low. Overall, it is concluded that there is no potential for LSE on harbour porpoise and bottlenose dolphin features of their respective SACs due to this impact during the construction and O&M phases of the Proposed Development.

**d: Injury and disturbance from subsea noise generated by vessel use and other noise producing activities** – as discussed in Table 5.5, the increase in subsea noise generated by vessels will be small in comparison to existing background levels and activities within the Scoping Boundary (such as sand wave clearance, trenching for cable installation and rock placement) will be intermittent and short term. Additionally, given the significant distance between the Proposed Development and the Southern North Sea SAC and the Skerries and Causeway SAC (i.e.

both more than 390 km from the Proposed Development) as well as the distance to the nearest transboundary site (485.9 km), and that the majority of vessel movements across will likely be to/from ports on the north-east coast of Scotland, it is considered that vessel traffic will not result in a significant disturbance to harbour porpoise features of any transboundary site. Overall, there is considered to be no potential for LSE on harbour porpoise and bottlenose dolphin features of their respective SACs due to this impact across all phases of the Proposed Development.

**e: Injury and disturbance from subsea noise generated by Wind Turbine operation** – as discussed in Table 5.5, subsea noise levels from operational Wind Turbines are predicted to be low, based on studies from other OWF projects. Additionally, although there is limited information on operational noise from floating Wind Turbines data is available that suggests that the impact is limited and within the range of current operational noise. Furthermore, this impact is not considered likely to result in significant impacts to harbour porpoise features of the Southern North Sea SAC and the Skerries and Causeway SAC (i.e. both more than 390 km from the Proposed Development) and any transboundary sites given that they are located >400 km away. Overall, it is concluded that there is no potential for LSE on harbour porpoise and bottlenose dolphin features of their respective SACs due to this impact during the O&M phase of the Proposed Development.

**f: Injury to marine mammals due to entanglement**– as discussed in Table 5.5, primary and secondary entanglement could occur during the O&M phase, with secondary entanglement (i.e. from fishing gear snagging on floating Wind Turbine mooring lines) posing a greater risk. Data on secondary entanglement at floating Wind Turbines is scarce. Harbour porpoise are known to forage and travel widely offshore where they may enter the Proposed Development Array Area and be at risk from entanglement. However, given the significant distance between the Southern North Sea SAC and the Skerries and Causeway SAC (i.e. both more than 390 km from the Proposed Development) as well as distance to the nearest transboundary site (485.9 km), this impact is not considered to result in significant impacts to harbour porpoise features of UK SAC over 300 km away or transboundary sites. Bottlenose dolphin in this region are primarily coastal and therefore they will not enter the Proposed Development Array Area and be at risk of entanglement. There is considered to be potential for LSE on harbour porpoise features of the Inner Hebrides and the Minches SAC due to this impact during the O&M phase of the Proposed Development., and no potential for LSE on the bottlenose dolphin feature of its respective SAC.

**g: Impact of EMF from subsea cables**– as discussed in Table 5.5, there is limited evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals. The impact of EMF from the Proposed Development will however be highly localised and represents a very small proportion of the foraging area for both of these species. Overall, there is considered to be no potential for LSE on harbour porpoise and bottlenose dolphin features of any SAC due to this impact during the O&M phase of the Proposed Development.

**h: Injury to marine mammals due to collision with vessels**– as discussed in Table 5.5, the increase in vessel traffic and activity associated with all phases of the Proposed Development is likely to be low in comparison to baseline levels. There is considered to be little potential of increased vessel traffic and activity resulting in a significant impact to harbour porpoise or bottlenose dolphin in terms of collision risk. Furthermore, given the significant distance between the Southern North Sea SAC and the Skerries and Causeway SAC (i.e. both more than 390 km from the Proposed Development) as well as the distance to the nearest transboundary site (485.9 km), there is therefore considered to be little potential for vessel activity related to the Proposed Development to result in a significant effect in terms of collision risk. Overall,



there is considered to be no potential for LSE on harbour porpoise and bottlenose dolphin features of their respective SACs due to this impact across all phases of the Proposed Development.

**i: Effects on marine mammals due to changes in prey availability** – as discussed in Table 5.5, harbour porpoise feature of the Inner Hebrides and the Minches SAC and the bottlenose dolphin feature of the Moray Firth SAC are likely to be present within the Scoping Boundary and may forage within the area. Effects on prey fish populations will occur primarily in the construction phase of the Proposed Development as a result of an increase in underwater noise however this impact cannot be fully assessed until the Proposed Development site-specific noise modelling has been completed. Additionally, the significant distance between the Southern North Sea SAC and the Skerries and Causeway SAC (i.e. both more than 390 km from the Proposed Development) as well as the distance to nearest transboundary site (485.9 km), and the large foraging range of this species they not will be impacted by changes in prey availability. The impact in the O&M and decommissioning phases will be much reduced as there will be no piling activity in these phases. Overall, there is considered to be potential for LSE on harbour porpoise and bottlenose dolphin features of the Inner Hebrides and the Minches SAC and Moray Firth SAC only due to this impact in the construction phase of the Proposed Development only and this impact is screened out for the O&M and decommissioning phases.

## 5.5 Assessment of LSE for Annex II Species (Onshore)

5.5.1 The European site identified in the initial screening process (Section 4) to be take forward for assessment of LSE for Annex II marine mammal features is outlined below in Table 5.8.

**Table 5.8: SACs and Relevant Qualifying Features to be Taken Forward for Assessment of LSE for Annex II Species (Onshore)**

European site	Relevant Annex II species (onshore) features
Caithness and Sutherland Peatland SAC	Otter

### *Pathways for LSE: Potential Impacts on Annex II species (onshore) Features*

5.5.2 This Section provides a tabulated list of potential impacts and effects on Annex II species (onshore) features that may result from activities associated with the Proposed Development (Table 5.9). These are the impacts which must be considered in the assessment of the potential for LSE in Table 5.10.

**Table 5.9: Pathways for LSE: Potential Impacts on Annex II Otter Features**

Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
Killing or injury of otters	✓	✓	✓	<p><b>All phases of development</b></p> <p>The activities associated with the construction, operation and decommissioning of offshore wind projects have the potential to kill, injury or damage otters. The primary activity which may cause disturbance, injury or damage to otters is vessel movement. Damage to habitat may occur as a result of cable installation (or removal) in the near shore and Landfall which may involve site preparation activities, trenching or jack-ups.</p> <p>The embedded mitigation measures however include good practice measures during all phases of the Proposed Development to protect European Protected Species (EPS), which includes otter. EPS are protected under the Conservation (Natural Habitats, &amp;c.) Regulations 1994 (as amended). As such, embedded mitigation will include measures to ensure compliance with existing legislation or those that are industry standard or good practice good, to ensure protection of all EPS during the construction works. This good practice will include elements such as the creation of a marine pollution contingency plan to reduce the risk of pollution incidents.</p> <p>The nearest SAC to the Export Cable Corridor is 1.66 km away therefore installation, operation and maintenance and decommissioning activities will not directly interact with otter habitat such as holts/couches.</p> <p>There is no potential for LSE on Annex II species (onshore) features due to any of the identified impacts across all phases of the Proposed Development. The impacts are therefore screened out in all phases.</p>	✗
Damage or destruction of holts/couches	✓	✓	✓		✗
Noise and visual disturbance	✓	✓	✓		✗
Indirect effects due to pollution	✓	✓	✓		✗

### *Assessment of LSE for Annex II species (onshore) Features*

5.5.3 Table 5.10 presents the results of the LSE assessment as a result of the Proposed Development on relevant qualifying features of the SAC identified in Table 5.8. These assessments are made in the absence of mitigation measures specifically intended to avoid or reduce harmful effects to a European site. The footnotes to the following tables provide a brief assessment to support the screening in or out of each of the LSEs on the identified SAC features.

#### **LSE In-Combination**

5.5.4 The LSE test requires consideration of the Proposed Development alone and/or in-combination with other plans and projects. Therefore, it is not necessary at the LSE stage to consider sites/features for which an LSE ‘alone’ has already been identified, as in-combination effects will be considered at the AA. The focus at this stage should be to identify sites/features for which no LSE alone was concluded, but there is potential for an LSE in-combination with other plans and projects (i.e. due to wide foraging ranges resulting in a species interacting with a large number of projects).

5.5.5 Given the highly precautionary method for site selection applied during this Screening assessment, it is considered that the consolidation of information regarding external plans and projects would not likely result in additional European sites or new effect pathways being identified for the Screening assessment.

5.5.6 For Annex II species (onshore) features, no potential for LSE alone is identified for all sites with the potential to be affected, therefore no further assessment is required.

**Table 5.10: LSE Matrix for UK SACs with Annex II Species (Onshore) Qualifying Features**

European site and relevant qualifying features	Killing or injury of otters			Damage or destruction of holts/couches			Noise and visual disturbance			Indirect effects due to pollution		
	C	O	D	C	O	D	C	O	D	C	O	D
<b>Caithness and Sutherland Peatland SAC</b>												
Otter	x a	x a	x a	x b	x b	x b	x c	x c	x c	x d	x d	x d

The text below explains the conclusion of whether LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green. Where effects are not applicable to a particular feature they are greyed out.

**a: Killing or injury of otters** – as discussed in Table 5.9, there is potential for the sea otter feature of the Caithness and Sutherland Peatland SAC to be disturbed, injured or killed as a result of some of the activities associated with the Proposed Development. However embedded mitigation measures to protect EPS in all phases of the Proposed Development will ensure that otters will not be impacted by activities such as vessel movement and cable installation. Overall, it is concluded that there is no potential for LSE on Annex II species (onshore) features of the Caithness and Sutherland Peatland SAC due to this impact during all the phases of the Proposed Development.

**b: Damage or destruction of holts/couches** – as per justification for impact a: Killing or injury of otter.

**c: Noise and visual disturbance** - as per justification for impact a: Killing or injury of otter.

**d: Indirect effects due to pollution** – as per justification for impact a: Killing or injury of otter

## 5.6 Assessment of LSE for Marine Ornithological Features

5.6.1 The European sites identified in the initial screening process (Section 4) to be taken forward for assessment of LSE for marine ornithological features are outlined below in Table 5.11.

**Table 5.11 SPAs and Ramsar Sites and Relevant Qualifying Features to be Taken Forward for Assessment of LSE for Marine Ornithological Features**

European site	Relevant marine ornithological features		
	Breeding and non-breeding seasons	Non-breeding season only	Migratory CRM only
Caithness and Sutherland Peatlands SPA	Black-throated diver Red-throated diver		
North Caithness Cliffs SPA	Fulmar Guillemot Kittiwake Puffin Razorbill		
East Caithness Cliffs SPA	Fulmar Guillemot Kittiwake Razorbill Herring gull Shag Cormorant Great black-backed gull		
Copinsay SPA	Fulmar Guillemot Great black-backed gull Kittiwake		
Auskerry SPA	Arctic tern Storm petrel		

European site	Relevant marine ornithological features		
	Breeding and non-breeding seasons	Non-breeding season only	Migratory CRM only
Hoy SPA	Fulmar Great black-backed gull Great skua Guillemot Kittiwake Puffin		
Calf of Eday SPA	Fulmar Great black-backed gull Guillemot Kittiwake		
Orkney Mainland Moors SPA		Red-throated diver	
Rousay SPA	Fulmar Guillemot Kittiwake		
North Orkney SPA			Great northern diver Red-throated diver Slavonian grebe Velvet scoter
Scapa Flow SPA			Black-throated diver Great northern diver Red-throated diver Shag Eider Long-tailed duck Red-breasted merganser Slavonian grebe

European site	Relevant marine ornithological features		
	Breeding and non-breeding seasons	Non-breeding season only	Migratory CRM only
West Westray SPA	Fulmar Guillemot Kittiwake Razorbill		
Papa Westray (North Hill and Holm) SPA		Arctic skua	
Marwick Head SPA	Guillemot Kittiwake		
Fair Isle SPA	Fulmar Gannet Great skua Guillemot Kittiwake Puffin Razorbill		
Sule Skerry and Sule Stack SPA	Gannet Guillemot Leach's storm petrel Puffin Storm petrel		
Troup, Pennan and Lion's Head SPA	Fulmar Guillemot Kittiwake Razorbill		
Cape Wrath SPA	Fulmar Guillemot Kittiwake Puffin Razorbill		
Sumburgh Head SPA	Fulmar Guillemot Kittiwake		



European site	Relevant marine ornithological features		
	Breeding and non-breeding seasons	Non-breeding season only	Migratory CRM only
Foula SPA	Fulmar Great skua Guillemot Kittiwake Leach's storm petrel Puffin Razorbill		
Buchan Ness to Collieston Coast SPA	Fulmar Guillemot Kittiwake		
Mousa SPA	Storm petrel		
Moray Firth SPA			Great northern diver Red-throated diver Shag Common scoter Eider Goldeneye Long-tailed duck Red-breasted merganser Scaup Slavonian grebe Velvet scoter
Noss SPA	Fulmar Gannet Great skua Guillemot Kittiwake Puffin		
Handa SPA	Fulmar Great skua Kittiwake		

European site	Relevant marine ornithological features		
	Breeding and non-breeding seasons	Non-breeding season only	Migratory CRM only
North Rona and Sula Sgeir SPA	Fulmar Gannet Kittiwake Leach's storm petrel Puffin Storm petrel		
East Mainland Coast, Shetland SPA			Great northern diver Red-throated diver Slavonian grebe
Ronas Hill – North Roe and Tingon SPA		Red-throated diver Great skua	
Lewis Peatlands SPA		Red-throated diver	
Otterswick and Graveland SPA		Red-throated diver	
Fetlar SPA	Fulmar	Great skua Arctic skua	
Inner Moray Firth SPA and Ramsar Site			Cormorant Common tern Red-breasted merganser Scaup
Ramna Stacks and Gruney SPA	Leach's storm petrel		
Shiant Isles SPA	Fulmar Kittiwake Puffin Razorbill		

European site	Relevant marine ornithological features		
	Breeding and non-breeding seasons	Non-breeding season only	Migratory CRM only
Hermaness, Saxa Vord and Valla Field SPA	Fulmar Gannet Great skua Kittiwake Puffin		
Fowlsheugh SPA	Fulmar Kittiwake		
Priest Island (Summer Isles) SPA	Storm petrel		
Canna and Sanday SPA		Herring gull Kittiwake	
Forth Islands SPA	Fulmar Gannet Kittiwake Puffin	Lesser black-backed gull Cormorant Shag Herring gull Razorbill	
Flannan Isles SPA	Fulmar Kittiwake Leach's storm petrel	Razorbill	
Mointeach Scadabhaigh SPA		Red-throated diver	
Firth of Tay and Eden Estuary SPA and Ramsar site			Common scoter Eider Long-tailed duck Red-breasted Merganser Velvet scoter Cormorant
St Abb's Head to Fast Castle SPA	Kittiwake	Herring gull Razorbill Shag	

European site	Relevant marine ornithological features		
	Breeding and non-breeding seasons	Non-breeding season only	Migratory CRM only
Outer Firth of Forth and St Andrews Bay Complex SPA			Red-throated diver Shag Little gull Eider Slavonian grebe Waterfowl assemblage components: <ul style="list-style-type: none"> <li>• Common scoter</li> <li>• Goldeneye</li> <li>• Long-tailed duck</li> <li>• Red-breasted merganser</li> <li>• Velvet scoter</li> </ul>
North Colonsay and Western Cliffs SPA		Kittiwake	
St Kilda SPA	Fulmar Gannet Great skua Leach's storm petrel Manx shearwater		
Firth of Forth SPA and Ramsar site			Red-throated diver Slavonian grebe Waterfowl assemblage (non-breeding): <ul style="list-style-type: none"> <li>• Cormorant</li> <li>• Common scoter</li> <li>• Long-tailed duck</li> <li>• Red-breasted merganser</li> <li>• Velvet scoter</li> </ul>

European site	Relevant marine ornithological features		
	Breeding and non-breeding seasons	Non-breeding season only	Migratory CRM only
Farne Islands SPA		Cormorant Kittiwake Puffin Shag	
Rum SPA	Manx shearwater		
Coquet Island SPA		Puffin	
Mingulay and Berneray SPA	Fulmar		
Flamborough and Filey Coast SPA		Fulmar Gannet Herring gull Kittiwake Puffin Razorbill	
Rathlin Island SPA	Fulmar		
Horn Head to Fanad Head SPA	Fulmar		
Tory Island SPA	Fulmar		
West Donegal SPA	Fulmar		
Ailsa Craig SPA		Gannet Herring gull Kittiwake Lesser black-backed gull	
Outer Ards Ramsar Site	Manx shearwater		
Copeland Islands SPA	Manx shearwater		
Lough Neagh and Lough Beg SPA		Lesser black-backed gull	
Bowland Fells SPA		Lesser black-backed gull	

European site	Relevant marine ornithological features		
	Breeding and non-breeding seasons	Non-breeding season only	Migratory CRM only
Morecambe Bay and Duddon Estuary SPA		Herring gull	
Lambay Island SPA	Fulmar		
Clare Island SPA	Fulmar		
High Island, Inishshark and Davillaun SPA	Fulmar		
Ribble and Alt Estuaries SPA		Lesser black-backed gull	
Cruagh Island SPA	Manx shearwater		
Alde-Ore Estuary SPA		Herring gull Lesser black-backed gull	
Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA	Manx shearwater		
Cliffs of Moher SPA	Fulmar		
Kerry Head SPA	Fulmar		
Saltee Islands SPA	Fulmar		
Dingle Peninsula SPA	Fulmar		
Skomer, Skokholm and the Seas off Pembrokeshire SPA	Manx shearwater		
Grassholm SPA	Manx shearwater		
Basket Islands SPA	Fulmar Manx shearwater		
Puffin Island SPA	Fulmar Manx shearwater		

European site	Relevant marine ornithological features		
	Breeding and non-breeding seasons	Non-breeding season only	Migratory CRM only
Skelligs SPA	Fulmar Manx shearwater		
Deenish Island and Scariff Island SPA	Fulmar Manx shearwater		
Isles of Scilly SPA		Great black-backed gull Lesser black-backed gull	

*Pathways for LSE: Potential Impacts on Marine Ornithological Features*

5.6.2 This section provides a tabulated list of potential impacts and effects on marine ornithological features that may result from activities associated with the Proposed Development (Table 5.12). These are the impacts which must be considered when determining the potential for LSE on the European sites and qualifying marine ornithological features identified in Table 5.13.

**Table 5.12: Pathways for LSE: Potential Impacts on Marine Ornithological Features**

Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
Collision risk mortality due to collision with rotor blades	✗	✓	✗	<p><b>O&amp;M phase</b></p> <p>Collision of ornithological receptors with the rotating blades of the turbines may result in the death or injury of the individual, which could be additive either causing population declines or prevent population recovery.</p> <p>Species that forage within or commute through the Proposed Development are vulnerable.</p> <p>Some species are more at risk than others of colliding with the rotating turbine blades, depending on their:</p> <ul style="list-style-type: none"> <li>• flight height;</li> <li>• flight agility; and</li> <li>• degree of Wind Turbine or overall Proposed Development avoidance (micro/meso/macro avoidance).</li> </ul> <p><b>LSE on marine ornithological features due to collision risk mortality due to collision with rotor blades across the O&amp;M phase of the Proposed Development cannot be discounted. The impact is screened in.</b></p>	✓
Temporary habitat loss and/or habitat disturbance	✓	✗	✓	<p><b>Construction and Decommissioning phases</b></p> <p>Construction and decommissioning activities might temporarily impact the habitat on which the species depend, both the benthic and water column habitats.</p>	✓



Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
				<p>This impact can be via direct loss, i.e. when cables are buried, or indirect disturbance, i.e. an increase in SSC which reduces the available habitat (water column).</p> <p>This impact is restricted to within the footprint or near vicinity of the Proposed Development, including both the Export Cable Corridor and Array Area.</p> <p><b>LSE on marine ornithological features due to temporary habitat loss and/or habitat disturbance across the construction and decommissioning phases of the Proposed Development cannot be discounted. The impact is screened in.</b></p>	
Distributional responses, displacement, and barrier effects	✓	✓	✓	<p><b>All phases</b></p> <p>Birds may be displaced from their preferred foraging areas (displacement) or be required to undertake longer, more energetically costly, flights between the colony and their preferred foraging areas (barrier effects) leading to decreased survival rates or productivity in the population.</p> <p>Species that forage within the vicinity (2 km to 10 km) or commute through the Proposed Development are vulnerable. Species are susceptible at different distances from the Proposed Development.</p> <p><b>LSE on marine ornithological features due to distributional responses, displacement, and barrier effects across all phases of the Proposed Development cannot be discounted. The impact is screened in.</b></p>	✓

Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
Disturbance to prey species and their habitats	✓	✓	✓	<p><b>All phases</b></p> <p>The distribution or abundance of prey species could potentially be disturbed (increase or decrease) by the construction activities that disturb the seabed or the increase in subsea noise levels, which may cause displacement effects up the food chain, or even attract certain species (who are then more at risk of collision).</p> <p>This may cause displacement from foraging grounds in the area or a reduction in energy intake affecting productivity and survival rates.</p> <p>Migratory waterbird species would not be significantly affected when passing through the Proposed Development.</p> <p>Activities such as increase of vessel activity and underwater noise might result in disturbance and displacement of prey. Changes in hydrology, sediment or wave exposure associated with the construction/decommissioning may also displace prey availability.</p> <p><b>LSE on marine ornithological features due to disturbance to prey species and their habitats across all phases of the Proposed Development cannot be discounted. The impact is screened in.</b></p>	✓
Attraction to light	✓	✓	✓	<p><b>All phases</b></p> <p>Permanent lit structures may cause an impact to migrating birds.</p> <p><b>LSE on marine ornithological features due to attraction to light across all phases of the Proposed Development cannot be discounted. The impact is screened in.</b></p>	✓

Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
Collisions with stationary infrastructure	✗	✓	✗	<p><b>O&amp;M phase</b></p> <p>The risk of birds colliding with the substructure or underwater infrastructure is markedly low.</p> <p><b>There is no potential for LSE on marine ornithological features due to attraction to collisions with stationary infrastructure in the O&amp;M phases of the Proposed Development. The impact is screened out.</b></p>	✗
Accidental release of contaminants	✓	✓	✓	<p><b>All phases</b></p> <p>The potential impacts caused by the accidental release of pollutants is covered by non-EIA legislation which mitigates against potential impacts to benthic subtidal and intertidal receptors, thus significant impacts will not be generated for offshore or intertidal bird species.</p> <p><b>There is no potential for LSE on marine ornithological features due to accidental release of contaminants across all phases of the Proposed Development. The impact is screened out.</b></p>	✗
Permanent habitat loss	✗	✓	✗	<p><b>O&amp;M phase</b></p> <p>The impacts generated by Offshore Infrastructure development including Wind Turbine foundation or cable corridors are considered a permanent loss. However, this habitat loss would be highly localised and negligible for seabirds.</p> <p><b>There is no potential for LSE on marine ornithological features due to permanent habitat loss across the O&amp;M phase of the Proposed Development. The impact is screened out.</b></p>	✗

### *Assessment of LSE for Marine Ornithological Features*

5.6.3 Table 5.13 presents the results of the LSE assessment as a result of the Proposed Development on relevant qualifying features of the SPAs identified in Table 5.11. These assessments are made in the absence of mitigation measures specifically intended to avoid or reduce harmful effects to a European site. The footnotes to the following tables provide a brief assessment to support the screening in or out of each of the LSEs on the identified SPA/Ramsar site features.

#### *LSE In-Combination*

5.6.4 The LSE test requires consideration of the Proposed Development alone and/or in-combination with other plans and projects. Therefore, it is not necessary at the LSE stage to consider sites/features for which an LSE ‘alone’ has already been identified, as in-combination effects will be considered at the AA. The focus at this stage should be to identify sites/features for which no LSE alone was concluded, but there is potential for an LSE in-combination with other plans and projects (i.e. due to wide foraging ranges resulting in a species interacting with a large number of projects).

5.6.5 Given the highly precautionary method for site selection applied during this Screening assessment, the consolidation of information regarding external plans and projects would not likely result in additional European sites or new effect pathways being identified for the Screening assessment.

5.6.6 For marine ornithological features, the potential for LSE alone is identified for all sites with the potential to be affected, therefore effects in-combination will be considered at AA.

Table 5.13: LSE Matrix for SPAs/Ramsar Sites with Marine Ornithological Features

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>Caithness and Sutherland Peatlands SPA</b>																								
Red-throated diver		x		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
Black-throated diver		x		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
<b>North Caithness Cliffs SPA</b>																								
Fulmar		✓		✓		✓	x	x	x	✓	✓	✓	x	x	x		x		x	x	x		x	
Guillemot		x		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
Kittiwake		✓		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
Puffin		x		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
Razorbill		x		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss			
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	
<b>East Caithness Cliffs SPA</b>																									
Fulmar		✓ a		✓ b			✓ b	✗ c	✗ c	✗ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Guillemot		✗ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Kittiwake		✓ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Razorbill		✗ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Herring gull		✓ a		✓ b			✓ b	✗ c	✗ c	✗ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Shag		✗ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Cormorant		✗ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Great black-backed gull		✓ a		✓ b			✓ b	✗ c	✗ c	✗ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>Copinsay SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Guillemot		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Great black-backed gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Auskerry SPA</b>																								
Arctic tern		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Storm petrel		x a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
<b>Hoy SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x h	x h	x h		x h	
Great black-backed gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x h	x h	x h		x h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Great skua		x		✓		✓	x	x	x	✓	✓	✓	x	x	x		x		x	x	x		x	
Guillemot		x		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
Kittiwake		✓		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
Puffin		x		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
<b>Calf of Eday SPA</b>																								
Fulmar		✓		✓		✓	x	x	x	✓	✓	✓	x	x	x		x		x	x	x		x	
Great black-backed gull		✓		✓		✓	x	x	x	✓	✓	✓	x	x	x		x		x	x	x		x	
Guillemot		x		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
Kittiwake		✓		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
<b>Rousay SPA</b>																								
Fulmar		✓		✓		✓	x	x	x	✓	✓	✓	x	x	x		x		x	x	x		x	



European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Guillemot		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>North Orkney SPA (migratory SPA)</b>																								
Great northern diver		✓ a		x b		x b	x c	x c	x c	x d	x d	x <sup>d</sup>	x e	x e	x e		x f		x g	x g	x g		x h	
Red-throated diver		✓ a		x b		x b	x c	x c	x c	x d	x d	x <sup>d</sup>	x e	x e	x e		x f		x g	x g	x g		x h	
Slavonian grebe		✓ a		x b		x b	x c	x c	x c	x d	x d	x <sup>d</sup>	x e	x e	x e		x f		x g	x g	x g		x h	
Velvet scoter		✓ a		x b		x b	x c	x c	x c	x d	x d	x <sup>d</sup>	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Scapa Flow SPA (migratory SPA)</b>																								
Black-throated diver		✓ a		x b		x b	x c	x c	x c	x d	x d	x <sup>d</sup>	x e	x e	x e		x f		x g	x g	x g		x h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Red-throated diver		✓a		x		x	x	x	x	x	x	x	x	x	x		x		x	x	x		x	
Eider		✓a		x		x	x	x	x	x	x	x	x	x	x		x		x	x	x		x	
Great northern diver		✓a		x		x	x	x	x	x	x	x	x	x	x		x		x	x	x		x	
Long-tailed duck		✓a		x		x	x	x	x	x	x	x	x	x	x		x		x	x	x		x	
Red-breasted merganser		✓a		x		x	x	x	x	x	x	x	x	x	x		x		x	x	x		x	
Shag		✓a		x		x	x	x	x	x	x	x	x	x	x		x		x	x	x		x	
Slavonian grebe		✓a		x		x	x	x	x	x	x	x	x	x	x		x		x	x	x		x	
<b>West Westray SPA</b>																								
Fulmar		✓a		✓b		✓b	x	x	x	✓d	✓d	✓d	x	x	x		x		x	x	x		x	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Guillemot		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Razorbill		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Orkney Mainland Moors SPA</b>																								
Red-throated diver		x b		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Papa Westray (North Hill and Holm) SPA</b>																								
Arctic skua		x a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Marwick Head SPA</b>																								
Guillemot		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss			
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	
<b>Fair Isle SPA</b>																									
Fulmar		✓ a		✓ b			✓ b	✗ c	✗ c	✗ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Gannet		✓ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Great Skua		✗ a		✓ b			✓ b	✗ c	✗ c	✗ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Guillemot		✗ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Kittiwake		✓ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Puffin		✗ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Razorbill		✗ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
<b>Sule Skerry and Sule Stack SPA</b>																									
Gannet		✓ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Guillemot		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Leach's petrel		x a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
Puffin		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Storm petrel		x a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
<b>Troup, Pennan and Lion's Heads SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Guillemot		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Razorbill		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	

Ayre Offshore Wind Farm Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss			
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	
<b>Cape Wrath SPA</b>																									
Fulmar		✓ a		✓ b			✓ b	✗ c	✗ c	✗ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Kittiwake		✓ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Puffin		✗ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Guillemot		✗ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Razorbill		✗ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
<b>Sumburgh Head SPA</b>																									
Fulmar		✓ a		✓ b			✓ b	✗ c	✗ c	✗ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Guillemot		✗ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Kittiwake		✓ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss			
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	
<b>Foula SPA</b>																									
Fulmar		✓ a		✓ b			✓ b	✗ c	✗ c	✗ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Great skua		✗ a		✓ b			✓ b	✗ c	✗ c	✗ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Guillemot		✗ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Kittiwake		✓ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Leach's petrel		✗ a		✓ b			✓ b	✗ c	✗ c	✗ c	✓ d	✓ d	✓ d	✗ e	✓ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Puffin		✗ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
Razorbill		✗ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	
<b>Buchan Ness to Collieston Coast SPA</b>																									
Fulmar		✓ a		✓ b			✓ b	✗ c	✗ c	✗ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e		✗ f		✗ g	✗ g	✗ g		✗ h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Guillemot		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Mousa SPA</b>																								
Storm petrel		x a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
<b>Moray Firth SPA (migratory SPA)</b>																								
Great northern diver		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Red-throated diver		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Common scoter		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Eider		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	



European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Goldeneye		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Long-tailed duck		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Red-breasted merganser		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Scaup		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Slavonian grebe		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Velvet scoter		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Noss SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Gannet		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Great skua		x a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Guillemot		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Puffin		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>East Mainland Coast, Shetland SPA (migratory SPA)</b>																								
Great northern diver		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Red-throated diver		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Slavonian grebe		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	

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	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>Handa SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Great skua		x a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>North Rona and Sula Sgeir SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Gannet		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Leach's petrel		x a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
Puffin		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	

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	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Storm petrel		x a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
<b>Inner Moray Firth SPA and Ramsar site (migratory SPA)</b>																								
Cormorant		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Common tern		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Red-breasted merganser		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Scaup		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Ronas Hill – North Roe and Tingon SPA</b>																								
Great skua		x a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Red-throated diver		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>Otterswick and Graveland SPA</b>																								
Red-throated diver		x		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
		b		b		b	c	c	c	d	d	d	e	e	e		f		g	g	g		h	
<b>Ramna Stacks and Gruney SPA</b>																								
Leach's petrel		x		✓		✓	x	x	x	✓	✓	✓	x	✓	x		x		x	x	x		x	
		a		b		b	c	c	c	d	d	d	e	e	e		f		g	g	g		h	
<b>Fetlar SPA</b>																								
Fulmar		✓		✓		✓	x	x	x	✓	✓	✓	x	x	x		x		x	x	x		x	
		a		b		b	c	c	c	d	d	d	e	e	e		f		g	g	g		h	
Great skua		x		✓		✓	x	x	x	✓	✓	✓	x	x	x		x		x	x	x		x	
		a		b		b	c	c	c	d	d	d	e	e	e		f		g	g	g		h	
Arctic skua		x		✓		✓	x	x	x	✓	✓	✓	x	x	x		x		x	x	x		x	
		a		b		b	c	c	c	d	d	d	e	e	e		f		g	g	g		h	
<b>Hermaness, Saxa Vord and Valla Field SPA</b>																								
Fulmar		✓		✓		✓	x	x	x	✓	✓	✓	x	x	x		x		x	x	x		x	
		a		b		b	c	c	c	d	d	d	e	e	e		f		g	g	g		h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Gannet		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Great skua		x a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Puffin		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Fowlsheugh SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Priest Island (Summer Isles) SPA</b>																								
Storm petrel		x a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>Lewis Peatlands SPA</b>																								
Red-throated diver		x		✓			✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
	a		b	b			c	c	c	d	d	d	e	e	e		f		g	g	g		h	
<b>Shiant Isles SPA</b>																								
Fulmar		✓		✓			x	x	x	✓	✓	✓	x	x	x		x		x	x	x		x	
	a		b	b			c	c	c	d	d	d	e	e	e		f		g	g	g		h	
Kittiwake		✓		✓			✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
	a		b	b			c	c	c	d	d	d	e	e	e		f		g	g	g		h	
Puffin		x		✓			✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
	a		b	b			c	c	c	d	d	d	e	e	e		f		g	g	g		h	
Razorbill		x		✓			✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
	a		b	b			c	c	c	d	d	d	e	e	e		f		g	g	g		h	
<b>Firth of Tay and Eden Estuary SPA and Ramsar site (migratory SPA)</b>																								
Common scoter		✓		x			x	x	x	x	x	x	x	x	x		x		x	x	x		x	
	a		b	b			c	c	c	d	d	d	e	e	e		f		g	g	g		h	
Eider		✓		x			x	x	x	x	x	x	x	x	x		x		x	x	x		x	
	a		b	b			c	c	c	d	d	d	e	e	e		f		g	g	g		h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Cormorant		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Long-tailed duck		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Red-breasted Merganser		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Velvet scoter		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Outer Firth of Forth and St Andrews Bay Complex SPA</b>																								
Red-throated diver (migratory)		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Shag (migratory)		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Little gull (migratory)		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Eider (migratory)		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	



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	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Slavonian grebe (migratory)		√a		x		x	x	x	x	x	x	x	x	x	x		x		x	x	x		x	
Waterfowl assemblage (non-breeding) components:																								
Common scoter		√		x		x	x	x	x	x	x	x	x	x	x		x		x	x	x		x	
Goldeneye		a		x		x	x	x	x	x	x	x	x	x	x		f		g	g	g		h	
Long-tailed duck																								
Red-breasted merganser																								
velvet scoter																								
<b>Firth of Forth SPA and Ramsar Site (migratory SPA)</b>																								
Red-throated diver		√		x		x	x	x	x	x	x	x	x	x	x		x		x	x	x		x	
		a		x		x	x	x	x	x	x	x	x	x	x		f		g	g	g		h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Slavonian grebe		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
Waterfowl assemblage: •Cormorant •Common scoter •Long-tailed duck •Red-breasted merganser •Velvet scoter		✓ a		x b		x b	x c	x c	x c	x d	x d	x d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Forth Islands SPA</b>																								
Gannet		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	

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	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Puffin		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Lesser black-backed gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Cormorant		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Shag		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Herring gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Razorbill		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Flannan Isles SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Leach's petrel		x a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	

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	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Razorbill		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Canna and Sanday SPA</b>																								
Herring gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>St Abb's Head to Fast Castle SPA</b>																								
Herring gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Razorbill		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Shag		x a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	

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	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>Mointeach Scadabhaigh SPA</b>																								
Red-throated diver		x		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
<b>Farne Islands SPA</b>																								
Cormorant		x		✓		✓	x	x	x	✓	✓	✓	x	x	x		x		x	x	x		x	
Kittiwake		✓		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
Puffin		x		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
Shag		x		✓		✓	✓	✓	✓	✓	✓	✓	x	x	x		x		x	x	x		x	
<b>Rum SPA</b>																								
Manx shearwater		✓		✓		✓	x	x	x	✓	✓	✓	x	✓	x		x		x	x	x		x	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss			
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	
<b>North Colonsay and Western Cliffs SPA</b>																									
Kittiwake		✓ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>St Kilda SPA</b>																									
Fulmar		✓ a		✓ b			✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Gannet		✓ a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Great skua		x a		✓ b			✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Leach's petrel		x a		✓ b			✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
Manx shearwater		✓ a		✓ b			✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
<b>Coquet Island SPA</b>																									
Puffin		x a		✓ b			✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss			
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	
<b>Mingulay and Berneray SPA</b>																									
Fulmar		✓ <sup>a</sup>		✓ <sup>b</sup>			✓ <sup>b</sup>	✗ <sup>c</sup>	✗ <sup>c</sup>	✗ <sup>c</sup>	✓ <sup>d</sup>	✓ <sup>d</sup>	✓ <sup>d</sup>	✗ <sup>e</sup>	✗ <sup>e</sup>	✗ <sup>e</sup>		✗ <sup>f</sup>		✗ <sup>g</sup>	✗ <sup>g</sup>	✗ <sup>g</sup>		✗ <sup>h</sup>	
<b>Flamborough and Filey Coast SPA</b>																									
Fulmar		✓ <sup>a</sup>		✓ <sup>b</sup>			✓ <sup>b</sup>	✗ <sup>c</sup>	✗ <sup>c</sup>	✗ <sup>c</sup>	✓ <sup>d</sup>	✓ <sup>d</sup>	✓ <sup>d</sup>	✗ <sup>e</sup>	✗ <sup>e</sup>	✗ <sup>e</sup>		✗ <sup>f</sup>		✗ <sup>g</sup>	✗ <sup>g</sup>	✗ <sup>g</sup>		✗ <sup>h</sup>	
Gannet		✓ <sup>a</sup>		✓ <sup>b</sup>			✓ <sup>b</sup>	✓ <sup>c</sup>	✓ <sup>c</sup>	✓ <sup>c</sup>	✓ <sup>d</sup>	✓ <sup>d</sup>	✓ <sup>d</sup>	✗ <sup>e</sup>	✗ <sup>e</sup>	✗ <sup>e</sup>		✗ <sup>f</sup>		✗ <sup>g</sup>	✗ <sup>g</sup>	✗ <sup>g</sup>		✗ <sup>h</sup>	
Herring gull		✓ <sup>a</sup>		✓ <sup>b</sup>			✓ <sup>b</sup>	✗ <sup>c</sup>	✗ <sup>c</sup>	✗ <sup>c</sup>	✓ <sup>d</sup>	✓ <sup>d</sup>	✓ <sup>d</sup>	✗ <sup>e</sup>	✗ <sup>e</sup>	✗ <sup>e</sup>		✗ <sup>f</sup>		✗ <sup>g</sup>	✗ <sup>g</sup>	✗ <sup>g</sup>		✗ <sup>h</sup>	
Kittiwake		✓ <sup>a</sup>		✓ <sup>b</sup>			✓ <sup>b</sup>	✓ <sup>c</sup>	✓ <sup>c</sup>	✓ <sup>c</sup>	✓ <sup>d</sup>	✓ <sup>d</sup>	✓ <sup>d</sup>	✗ <sup>e</sup>	✗ <sup>e</sup>	✗ <sup>e</sup>		✗ <sup>f</sup>		✗ <sup>g</sup>	✗ <sup>g</sup>	✗ <sup>g</sup>		✗ <sup>h</sup>	
Puffin		✗ <sup>a</sup>		✓ <sup>b</sup>			✓ <sup>b</sup>	✓ <sup>c</sup>	✓ <sup>c</sup>	✓ <sup>c</sup>	✓ <sup>d</sup>	✓ <sup>d</sup>	✓ <sup>d</sup>	✗ <sup>e</sup>	✗ <sup>e</sup>	✗ <sup>e</sup>		✗ <sup>f</sup>		✗ <sup>g</sup>	✗ <sup>g</sup>	✗ <sup>g</sup>		✗ <sup>h</sup>	
Razorbill		✗ <sup>a</sup>		✓ <sup>b</sup>			✓ <sup>b</sup>	✓ <sup>c</sup>	✓ <sup>c</sup>	✓ <sup>c</sup>	✓ <sup>d</sup>	✓ <sup>d</sup>	✓ <sup>d</sup>	✗ <sup>e</sup>	✗ <sup>e</sup>	✗ <sup>e</sup>		✗ <sup>f</sup>		✗ <sup>g</sup>	✗ <sup>g</sup>	✗ <sup>g</sup>		✗ <sup>h</sup>	

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	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>Lough Neagh and Lough Beg SPA</b>																								
Lesser black-backed gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Bowland Fells SPA</b>																								
Lesser black-backed gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Rathlin Island SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Tory Island SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>West Donegal Coast SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	



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	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>Ailsa Craig SPA</b>																								
Gannet		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Herring gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Kittiwake		✓ a		✓ b		✓ b	✓ c	✓ c	✓ c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Lesser black-backed gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Copeland Islands SPA</b>																								
Manx shearwater		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
<b>Outer Ards SPA</b>																								
Manx shearwater		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>Morecambe Bay and Duddon Estuary SPA</b>																								
Herring gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Lambay Island SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Clare Island SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>High Island, Inishshark and Davillaun SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Ribble and Alt Estuaries SPA</b>																								
Lesser black-backed gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>Cruagh Island SPA</b>																								
Manx shearwater		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
<b>Alde-Ore Estuary SPA</b>																								
Herring gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Lesser black-backed gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA</b>																								
Manx shearwater		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
<b>Cliffs of Moher SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Kerry Head SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	

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	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>Saltee Islands SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Dingle Peninsula SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
<b>Skomer, Skokholm and the Seas off Pembrokeshire SPA</b>																								
Manx shearwater		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
<b>Grassholm SPA</b>																								
Manx shearwater		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
<b>Blasket Islands SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Manx shearwater		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
<b>Puffin Island SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Manx shearwater		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
<b>Skelligs SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Manx shearwater		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	
<b>Deenish Island and Scariff Island SPA</b>																								
Fulmar		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Manx shearwater		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	✓ e	x e		x f		x g	x g	x g		x h	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades			Temporary habitat loss and/or habitat disturbance			Distributional responses, displacement and barrier effects			Disturbance to prey species and their habitats			Attraction to light			Collisions with stationary infrastructure			Accidental release of contaminants			Permanent habitat loss		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>Isles of Scilly SPA</b>																								
Great black-backed gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	
Lesser black-backed gull		✓ a		✓ b		✓ b	x c	x c	x c	✓ d	✓ d	✓ d	x e	x e	x e		x f		x g	x g	x g		x h	

The text below explains the conclusion of whether LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a x symbol is included and highlighted green. Where effects are not applicable to a particular feature they are greyed out.

**a. Collision risk mortality due to collision with rotor blades** – A species is not considered susceptible to collision mortality due to collision with rotor blades if it does not spend a significant proportion of time flying at rotor height. Species considered to be sensitive are those defined in NatureScot (2023) ‘Guidance Note 6: Guidance to support Offshore Wind Applications – Marine Ornithology Impact Pathways for Offshore Wind Developments’ for assessing collision risk of marine birds: gannet, kittiwake, fulmar, Manx shearwater, gulls, and terns. Therefore, there is only potential for LSE to occur for these marine ornithological qualifying features in relation to this effect pathway. Species which occur on migration within the Array Area are also susceptible to collisions with the rotor blades and therefore for migratory populations there is also potential for LSE to occur. There is no potential for LSE for any other qualifying feature.

**b. Temporary habitat loss and/or habitat disturbance** – As presented in Table 5.12, temporary habitat loss and/or habitat disturbance has the potential to occur but will be temporary and limited in extent to the footprint of the Array Area and Export Cable Corridor only. Only where the Array Area has spatial overlap with areas used by the species at the SPA colony is there the potential for LSE to occur.

**c. Distributional responses, displacement, and barrier effects** – There is the potential for LSE to occur for species that score three or higher in either or both sensitivity metrics used to assess displacement and barrier effects from Bradbury *et al.* (2014), presented in JNCC and

Natural England (2022): i) disturbance sensitivity (to disturbance by wind farm structures, vessel, and helicopter traffic) and ii) habitat specialisation. Species required to be progressed to further displacement analysis in JNCC and Natural England (2022) based on empirical data (i.e. gannet, cormorant and gull species), or on the basis of previous NatureScot/Marine Directorate (MD) advice to OWF developers in Scottish waters to take species forward for assessment regardless of sensitivity scoring (i.e. kittiwake), have also been screened in on the basis there is the potential for LSE to occur. For all other species, there is no potential for LSE to occur in relation to this effect pathway.

**d. Disturbance to prey species and their habitats** – LSE cannot be ruled out for any seabird species or project phase (NatureScot, 2023a). Impact to be considered for further assessment in conjunction with wider receptors (e.g. diadromous fish).

**e. Attraction to light** – Evidence supports that potential significant attraction and disorientation effects from artificial lights sources mainly occur on procellariiform seabirds (e.g. shearwaters and petrels) (Deakin *et al.*, 2022). Turbines are lit for aviation safety thus the impact occurs predominantly in the O&M phase. Therefore, there is only potential for LSE to occur for these marine ornithological qualifying features in relation to this effect pathway during the O&M phase. There is no potential for LSE for any other qualifying feature.

**f. Collisions with stationary infrastructure** – As presented in Table 5.12, the risk of collision with stationary infrastructure is only present in the O&M phase. The likelihood of any qualifying features of any European site colliding with substructures or underwater infrastructure is markedly low. Therefore, there is no potential for LSE to occur for all qualifying features.

**g. Accidental release of contaminants** – As presented in Table 5.12, accidental release of contaminants is not considered further as a potential impact pathway as non-EIA legislation will ensure significant impacts do not occur. Therefore, there is no potential for LSE to occur for all qualifying features.

**h. Permanent habitat loss** – As presented in Table 5.12, permanent habitat loss will occur in the O&M phase only and will be localised and negligible in extent. Therefore, there is no potential for LSE to occur for any marine ornithological qualifying feature in relation to this effect pathway.

## 5.7 Assessment of LSE for Onshore Ornithological Features

5.7.1 The European sites identified in the initial screening process (Section 4) to be take forward for assessment of LSE for onshore ornithological features (assessed for migratory collision risk only) are outlined below in Table 5.14.

**Table 5.14 SPAs/Ramsar Sites and Relevant Qualifying Features to be Taken Forward for Assessment of LSE for Onshore Ornithological Features**

European site	Relevant onshore ornithological features
East Sanday Coast SPA and Ramsar site	Bar-tailed godwit Purple sandpiper Turnstone
Switha SPA	Greenland barnacle goose
Caithness Lochs SPA and Ramsar site	Greenland white-fronted goose Greylag goose Whooper swan
North Sutherland Coastal Islands SPA	Greenland barnacle goose
Loch of Strathbeg SPA and Ramsar site	Greylag goose Pink-footed goose Svalbard barnacle goose Whooper swan Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Goldeneye</li> <li>• Teal</li> </ul>
Dornoch Firth and Loch Fleet SPA and Ramsar site	Bar-tailed godwit Greylag goose Wigeon Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Curlew</li> <li>• Dunlin</li> <li>• Oystercatcher</li> <li>• Redshank</li> <li>• Scaup</li> <li>• Teal</li> </ul>
Moray and Nairn Coast SPA	Bar-tailed godwit Greylag goose Pink-footed goose Redshank Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Dunlin</li> </ul>



European site	Relevant onshore ornithological features
	<ul style="list-style-type: none"> <li>• Oystercatcher</li> <li>• Red-breasted merganser</li> <li>• Wigeon</li> </ul>
Ythan Estuary and Meikle Loch SPA and Ramsar site	Pink-footed goose Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Eider</li> <li>• Lapwing</li> <li>• Redshank</li> </ul>
Cromarty Firth SPA and Ramsar site	Bar-tailed godwit Whooper swan Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Curlew</li> <li>• Dunlin</li> <li>• Greylag goose</li> <li>• Knot</li> <li>• Oystercatcher</li> <li>• Pintail</li> <li>• Red-breasted merganser</li> <li>• Redshank</li> <li>• Scaup</li> <li>• Wigeon</li> </ul>
Inner Moray Firth SPA and Ramsar site	Bar-tailed godwit Greylag goose Osprey Redshank Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Curlew</li> <li>• Goosander</li> <li>• Goldeneye</li> <li>• Oystercatcher</li> <li>• Teal</li> <li>• Wigeon</li> </ul>
Montrose Basin SPA and Ramsar site	Greylag goose Pink-footed goose Redshank Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Dunlin</li> <li>• Eider</li> <li>• Knot</li> <li>• Oystercatcher</li> </ul>

European site	Relevant onshore ornithological features
	<ul style="list-style-type: none"> <li>• Shelduck</li> <li>• Wigeon</li> </ul>
Firth of Tay and Eden Estuary SPA and Ramsar site	Bar-tailed godwit Greylag goose Pink-footed goose Redshank Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Dunlin</li> <li>• Goldeneye</li> <li>• Goosander</li> <li>• Grey plover</li> <li>• Icelandic black-tailed godwit</li> <li>• Oystercatcher</li> <li>• Sanderling</li> <li>• Shelduck</li> </ul>
Firth of Forth SPA and Ramsar site	Bar-tailed godwit Golden plover Knot Pink-footed goose Redshank Shelduck Turnstone Waterfowl assemblage (non-breeding): <ul style="list-style-type: none"> <li>• Curlew</li> <li>• Dunlin</li> <li>• Eider</li> <li>• Goldeneye</li> <li>• Great crested grebe</li> <li>• Grey plover</li> <li>• Lapwing</li> <li>• Long-tailed duck</li> <li>• Mallard</li> <li>• Oystercatcher</li> <li>• Ringed plover</li> <li>• Scaup</li> <li>• Wigeon</li> </ul>
Lindisfarne Ramsar Site	Bar-tailed godwit Greylag goose Light-bellied brent goose Redshank

European site	Relevant onshore ornithological features
	Ringed plover Wigeon
Lindisfarne SPA	Bar-tailed godwit Common scoter Dunlin Eider Golden plover Greylag goose Grey plover Light-bellied brent goose Long-tailed duck Red-breasted merganser Redshank Ringed plover Sanderling Shelduck Whooper swan Wigeon
Northumbria Coast SPA	Purple sandpiper Turnstone

*Pathways for LSE: Potential Impacts on Onshore Ornithological Features*

5.7.2 This section provides a tabulated list of potential impacts and effects on onshore ornithological features that may result from activities associated with the Proposed Development (Table 5.15). These are the impacts which must be taken into account when determining the potential for LSE in Table 5.16.

**Table 5.15: Pathways for LSE: Potential Impacts on Onshore Ornithological Features**

Impact	Relevant Project Phase			Justification for screening decision	Potential for an LSE to occur (Yes = ✓, No = ✗)
	C	O	D		
Collision risk mortality due to collision with rotor blades	✗	✓	✗	<p>Collision of onshore ornithological receptors with the rotating blades of the turbines may result in the death or injury of the individual, which could be additive either causing population declines or prevent population recovery. Species that migrate through the Proposed Development are vulnerable.</p> <p>Some species are more at risk than others of colliding with the rotating turbine blades, depending on their:</p> <ul style="list-style-type: none"> <li>• flight height'</li> <li>• flight agility;</li> <li>• degree of Wind Turbine or overall Proposed Development avoidance (micro/meso/macro avoidance).</li> </ul> <p><b>LSE on onshore ornithological features due to collision risk mortality due to collision with rotor blades across the O&amp;M phase of the Proposed Development cannot be discounted. The impact is screened in.</b></p>	✓

*Assessment of LSE for Onshore Ornithological Features*

5.7.3 Table 5.16 presents the results of the LSE assessment as a result of the Proposed Development on relevant qualifying features of the SPAs/Ramsar sites identified in Table 5.14. These assessments are made in the absence of mitigation measures specifically intended to avoid or reduce harmful effects to a European site. The footnotes to the following tables provide a brief assessment to support the screening in or out of each of the LSEs on the identified SPA/Ramsar site features.

### LSE In-Combination

- 5.7.4 The LSE test requires consideration of the Proposed Development alone and/or in-combination with other plans and projects. Therefore, it is not necessary at the LSE stage to consider sites/features for which an LSE ‘alone’ has already been identified, as in-combination effects will be considered at the AA. The focus at this stage should be to identify sites/features for which no LSE alone was concluded, but there is potential for an LSE in-combination with other plans and projects (i.e. due to wide foraging ranges resulting in a species interacting with a large number of projects).
- 5.7.5 Given the highly precautionary method for site selection applied during this Screening assessment, it is considered that the consolidation of information regarding external plans and projects would not likely result in additional European sites or new effect pathways being identified for the Screening assessment.
- 5.7.6 For onshore ornithological features, the potential for LSE alone is identified for all sites with the potential to be affected, therefore effects in-combination will be considered at AA.

**Table 5.16: LSE Matrix for SPAs/Ramsar Sites with Onshore Ornithological Features**

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades		
	C	O	D
<b>East Sanday Coast SPA and Ramsar site</b>			
Bar-tailed godwit		✓a	
Purple sandpiper		✓a	
Turnstone		✓a	
<b>Switha SPA</b>			
Greenland barnacle goose		✓a	
<b>Caithness Lochs SPA and Ramsar site</b>			
Greenland white-fronted goose		✓a	
Greylag goose		✓a	
Whooper swan		✓a	
<b>North Sutherland Coastal Islands SPA</b>			
Greenland barnacle goose		✓a	
<b>Loch of Strathbeg SPA and Ramsar site</b>			
Greylag goose		✓a	
Pink-footed goose		✓a	
Svalbard barnacle goose		✓a	
Whooper swan		✓a	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades		
	C	O	D
Goldeneye (- as part of the waterfowl assemblage)		✓a	
<b>Teal (- as part of the waterfowl assemblage)</b>		✓a	
<b>Dornoch Firth and Loch Fleet SPA and Ramsar site</b>			
Bar-tailed godwit		✓a	
Greylag goose		✓a	
Wigeon		✓a	
Curlew (- as part of the waterfowl assemblage)		✓a	
Dunlin (- as part of the waterfowl assemblage)		✓a	
Oystercatcher		✓a	
Redshank		✓a	
Scaup		✓a	
Teal (- as part of the waterfowl assemblage)		✓a	
<b>Moray and Nairn Coast SPA</b>			
Bar-tailed godwit		✓a	
Greylag goose		✓a	
Pink-footed goose		✓a	
Redshank		✓a	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades		
	C	O	D
Dunlin (- as part of the waterfowl assemblage)		✓a	
Oystercatcher		✓a	
Red-breasted merganser		✓a	
Wigeon		✓a	
<b>Ythan Estuary and Meikle Loch SPA and Ramsar site</b>			
Pink-footed goose		✓a	
Eider (- as part of the waterfowl assemblage)		✓a	
Lapwing		✓a	
Redshank		✓a	
<b>Cromarty Firth SPA and Ramsar site</b>			
Bar-tailed godwit		✓a	
Whooper swan		✓a	
Curlew (- as part of the waterfowl assemblage)		✓a	
Dunlin (- as part of the waterfowl assemblage)		✓a	
Greylag goose		✓a	
Knot		✓a	
Oystercatcher		✓a	



European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades		
	C	O	D
Pintail		✓a	
Red-breasted merganser		✓a	
Redshank		✓a	
Scaup		✓a	
Wigeon		✓a	
<b>Inner Moray Firth SPA and Ramsar site</b>			
Bar-tailed godwit		✓a	
Greylag goose		✓a	
Redshank		✓a	
Goosander (- as part of the waterfowl assemblage)		✓a	
Curlew (- as part of the waterfowl assemblage)		✓a	
Goldeneye (- as part of the waterfowl assemblage)		✓a	
Oystercatcher		✓a	
Osprey		✓a	
Teal (- as part of the waterfowl assemblage)		✓a	
Wigeon		✓a	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades		
	C	O	D
<b>Firth of Tay and Eden Estuary SPA and Ramsar site</b>			
Bar-tailed godwit		✓a	
Greylag goose		✓a	
Pink-footed goose		✓a	
Redshank		✓a	
Dunlin (- as part of the waterfowl assemblage)		✓a	
Goldeneye (- as part of the waterfowl assemblage)		✓a	
Goosander		✓a	
Grey plover		✓a	
Icelandic black-tailed godwit		✓a	
Oystercatcher		✓a	
Sanderling		✓a	
Shelduck		✓a	
<b>Firth of Forth SPA and Ramsar site</b>			
Bar-tailed godwit		✓a	
Golden plover		✓a	
Knot		✓a	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades		
	C	O	D
Pink-footed goose		✓a	
Redshank		✓a	
Shelduck		✓a	
Turnstone		✓a	
Curlew (- as part of the waterfowl assemblage)		✓a	
Dunlin (- as part of the waterfowl assemblage)		✓a	
Eider (- as part of the waterfowl assemblage)		✓a	
Goldeneye (- as part of the waterfowl assemblage)		✓a	
Great crested grebe		✓a	
Grey plover		✓a	
Lapwing		✓a	
Long-tailed duck		✓a	
Mallard		✓a	
Oystercatcher		✓a	
Ringed plover		✓a	
Scaup		✓a	
Wigeon		✓a	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades		
	C	O	D
<b>Lindisfarne Ramsar Site</b>			
Bar-tailed godwit		✓a	
Greylag goose		✓a	
Light-bellied brent goose		✓a	
Redshank		✓a	
Ringed plover		✓a	
Wigeon		✓a	
<b>Lindisfarne SPA</b>			
Bar-tailed godwit		✓a	
Common scoter		✓a	
Dunlin (- as part of the waterfowl assemblage)		✓a	
Eider (- as part of the waterfowl assemblage)		✓a	
Golden plover		✓a	
Greylag goose		✓a	
Grey plover		✓a	
Light-bellied brent goose		✓a	
Long-tailed duck		✓a	

European site and relevant qualifying features	Collision risk mortality due to collision with rotor blades		
	C	O	D
Red-breasted merganser		✓a	
Redshank		✓a	
Ringed plover		✓a	
Sanderling		✓a	
Shelduck		✓a	
Whooper swan		✓a	
Wigeon		✓a	
<b>Northumbria Coast SPA</b>			
Purple sandpiper		✓a	
Turnstone		✓a	

The text below explains the conclusion of whether LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green. Where effects are not applicable to a particular feature they are greyed out.

**a. Collision risk mortality due to collision with rotor blades** – Species on migration can move through the Array Area twice a year, once on spring passage/migration and once on autumn passage/migration (Woodward *et al.*, 2023). For all species which are features of north-east coast of England and Scotland migratory waterbird SPAs and Ramsar sites the potential for LSE during the O&M phase cannot be excluded and they will be assessed in more detail as part of the migratory CRM analysis.

## 6 Approach to the In-Combination Assessment

- 6.1.1 The Habitats Regulations require the consideration of the potential effects of a project on European sites both alone and in-combination with other plans or projects.
- 6.1.2 The in-combination assessment will consider all other relevant plans, projects and activities where information to inform the assessment is publicly available three months prior to the Proposed Development application.
- 6.1.3 For the Proposed Development in-combination assessment, a tiered approach has been adopted. This approach provides a framework for placing relative weight upon each plan/project based on the level of maturity of the plan/projects(s). It will inform whether adequate detail is available to undertake a meaningful assessment, and if so whether a qualitative or quantitative assessment can be undertaken.
- 6.1.4 The tiered approach uses the following categorisations:
- Tier 1 - The onshore elements of the Project;
  - Tier 2 - Plans or projects that have an application submitted, are consented, under construction or operational;
  - Tier 3 – Plans or projects which have submitted a scoping report and/or have received a scoping opinion; and
  - Tier 4 – Reasonably foreseeable plans or projects including those with Crown Estate Scotland option or lease agreements.
- 6.1.5 An overview of the projects or activities which will be considered for in-combination with the Proposed Development include (but are not limited to):
- other offshore wind farms and marine renewable energy projects, and associated cabling and infrastructure;
  - oil and gas infrastructure/development (cables and pipelines);
  - other forms of cabling (i.e. telecommunications and interlinks);
  - beach replenishment schemes;
  - navigation and shipping; and
  - aggregate extraction and disposal of dredging spoil.

## **7 Summary of LSE**

- 7.1.1 A summary of the European sites, qualifying features and potential impacts for which a potential for a LSE has been identified as a result of the Proposed Development alone and/or in-combination with other plans or projects is presented in Table 7.1 for non-ornithological features and in Table 7.2 for ornithological features. A total of 121 European sites are being taken forward for consideration in the RIAA.

**Table 7.1: Summary of the European Sites and Relevant Qualifying Features (Annex II Diadromous Fish and Annex II Marine Mammals) for which Potential LSEs have been Identified and Further Assessment in the RIAA is Required**

European site	Distance to the Proposed Development Export Cable Corridor (km) <sup>3</sup>	Distance to the Proposed Development Array Area (km) <sup>3</sup>	Relevant qualifying features	Impact	Relevant Project Phase		
					C	O	D
<b>Diadromous Fish and Shellfish</b>							
Berriedale and Langwell Waters SAC	46.6	72.1	Atlantic salmon	Subsea noise impacting fish and shellfish (alone and in-combination)	✓	✗	✗
				Impacts to fish and shellfish due to EMF (alone and in-combination)	✗	✓	✗
River Thurso SAC	47.2	94.8	Atlantic salmon	Subsea noise impacting fish and shellfish (alone and in-combination)	✓	✗	✗
				Impacts to fish and shellfish due to EMF (alone and in-combination)	✗	✓	✗
River Borgie SAC	88.6	114.1	Atlantic salmon	Subsea noise impacting fish and shellfish (alone and in-combination)	✓	✗	✗

<sup>3</sup> Note: All distances are measured as the marine route to the site (i.e. not the distance as the crow flies).



European site	Distance to the Proposed Development Export Cable Corridor (km) <sup>3</sup>	Distance to the Proposed Development Array Area (km) <sup>3</sup>	Relevant qualifying features	Impact	Relevant Project Phase		
					C	O	D
				Impacts to fish and shellfish due to EMF (alone and in-combination)	x	✓	x
			Freshwater pearl mussel	Subsea noise impacting fish and shellfish (alone and in-combination)	✓	x	x
				Impacts to fish and shellfish due to EMF (alone and in-combination)	x	✓	x
River Naver SAC	91.3	118.3	Atlantic salmon	Subsea noise impacting fish and shellfish (alone and in-combination)	✓	x	x
				Impacts to fish and shellfish due to EMF (alone and in-combination)	x	✓	x
			Freshwater pearl mussel	Subsea noise impacting fish and shellfish (alone and in-combination)	✓	x	x
				Impacts to fish and shellfish due to EMF (alone and in-combination)	x	✓	x

European site	Distance to the Proposed Development Export Cable Corridor (km) <sup>3</sup>	Distance to the Proposed Development Array Area (km) <sup>3</sup>	Relevant qualifying features	Impact	Relevant Project Phase		
					C	O	D
River Spey SAC	91.4	131.6	Atlantic salmon	Subsea noise impacting fish and shellfish (alone and in-combination)	✓	✗	✗
				Impacts to fish and shellfish due to EMF (alone and in-combination)	✗	✓	✗
			Freshwater pearl mussel	Subsea noise impacting fish and shellfish (alone and in-combination)	✓	✗	✗
				Impacts to fish and shellfish due to EMF (alone and in-combination)	✗	✓	✗
			Sea lamprey	Subsea noise impacting fish and shellfish (alone and in-combination)	✓	✗	✗
				Impacts to fish and shellfish due to EMF (alone and in-combination)	✗	✓	✗
Evelix SAC	100.8	148.0	Freshwater pearl mussel	Subsea noise impacting fish and shellfish (alone and in-combination)	✓	✗	✗

European site	Distance to the Proposed Development Export Cable Corridor (km) <sup>3</sup>	Distance to the Proposed Development Array Area (km) <sup>3</sup>	Relevant qualifying features	Impact	Relevant Project Phase		
					C	O	D
				Impacts to fish and shellfish due to EMF (alone and in-combination)	x	✓	x
River Oykel SAC	115.9	164.3	Atlantic salmon	Subsea noise impacting fish and shellfish (alone and in-combination)	✓	x	x
				Impacts to fish and shellfish due to EMF (alone and in-combination)	x	✓	x
			Freshwater pearl mussel	Subsea noise impacting fish and shellfish (alone and in-combination)	✓	x	x
				Impacts to fish and shellfish due to EMF (alone and in-combination)	x	✓	x
Foinaven SAC	162.4	188.8	Freshwater pearl mussel	Subsea noise impacting fish and shellfish (alone and in-combination)	✓	x	x
				Impacts to fish and shellfish due to EMF (alone and in-combination)	x	✓	x

European site	Distance to the Proposed Development Export Cable Corridor (km) <sup>3</sup>	Distance to the Proposed Development Array Area (km) <sup>3</sup>	Relevant qualifying features	Impact	Relevant Project Phase		
					C	O	D
Ardvar and Loch a' Mhuilinn Woodlands SAC	175.0	197.6	Freshwater pearl mussel	Subsea noise impacting fish and shellfish (alone and in-combination)	✓	✗	✗
				Impacts to fish and shellfish due to EMF (alone and in-combination)	✗	✓	✗
<b>Marine Mammals</b>							
Sanday SAC	36.2	31.2	Harbour seal	Injury and disturbance from subsea noise generated during piling (alone and in-combination)	✓	✗	✗
				Injury and disturbance from subsea noise generated during UXO clearance (alone and in-combination)	✓	✗	✗
				Injury and disturbance from subsea noise generated by vessel use and other noise producing activities (alone and in-combination)	✓	✓	✓

European site	Distance to the Proposed Development Export Cable Corridor (km) <sup>3</sup>	Distance to the Proposed Development Array Area (km) <sup>3</sup>	Relevant qualifying features	Impact	Relevant Project Phase		
					C	O	D
				Injury to marine mammals due to entanglement (alone and in-combination)	x	✓	x
				Effects on marine mammals due to changes in prey availability (alone and in-combination)	✓	x	x
Faray and Holm of Faray SAC	48.5	44.8	Grey seal	Injury and disturbance from subsea noise generated during piling (alone and in-combination)	✓	x	x
				Injury and disturbance from subsea noise generated during UXO clearance (alone and in-combination)	✓	x	x
				Injury and disturbance from subsea noise generated by vessel use and other noise producing activities (alone and in-combination)	✓	✓	✓

European site	Distance to the Proposed Development Export Cable Corridor (km) <sup>3</sup>	Distance to the Proposed Development Array Area (km) <sup>3</sup>	Relevant qualifying features	Impact	Relevant Project Phase		
					C	O	D
				Injury to marine mammals due to entanglement (alone and in-combination)	x	✓	x
				Effects on marine mammals due to changes in prey availability (alone and in-combination)	✓	x	x
Moray Firth SAC	61.5	106.2	Bottlenose dolphin	Injury and disturbance from subsea noise generated during piling (alone and in-combination)	✓	x	x
				Injury and disturbance from subsea noise generated during UXO clearance (alone and in-combination)	✓	x	x
				Effects on marine mammals due to changes in prey availability (alone and in-combination)	✓	x	x

European site	Distance to the Proposed Development Export Cable Corridor (km) <sup>3</sup>	Distance to the Proposed Development Array Area (km) <sup>3</sup>	Relevant qualifying features	Impact	Relevant Project Phase		
					C	O	D
Inner Hebrides and the Minches SAC	178.5	203.0	Harbour porpoise	Injury and disturbance from subsea noise generated during piling (alone and in-combination)	✓	x	x
				Injury and disturbance from subsea noise generated during UXO clearance (alone and in-combination)	✓	x	x
				Injury to marine mammals due to entanglement (alone and in-combination)	x	✓	x
				Effects on marine mammals due to changes in prey availability (alone and in-combination)	✓	x	x

(✓= Potential for LSE During Project Phase, C = Construction, O&M= Operation and Maintenance, D= Decommissioning)

**Table 7.2: Summary of the European Sites and Relevant Qualifying Features (Ornithology) for Which Potential LSEs Have Been Identified and Further Assessment in the RIAA is Required**

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
Caithness and Sutherland Peatlands SPA	46.4	1.7	Red-throated diver	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Black-throated diver	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
North Caithness Cliffs SPA	37.9	4.2	Fulmar	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
		Guillemot	Temporary habitat loss and/or habitat disturbance	✓	✗	✓	



European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	✗	✓	✗
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Puffin	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Razorbill	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Disturbance to prey species and their habitats	✓	✓	✓
East Caithness Cliffs SPA	56.0	5.2	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Guillemot	Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	x	✓	x
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Disturbance to prey species and their habitats	✓	✓	✓
			Razorbill	Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Herring gull	Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Collision risk	x	✓	x
				Disturbance to prey species and their habitats	✓	✓	✓
			Shag	Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Cormorant	Temporary habitat loss and/or habitat disturbance	✓	x	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Great black-backed gull	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Collision risk	✗	✓	✗
				Disturbance to prey species and their habitats	✓	✓	✓
Copinsay SPA	27.9	14.4	Fulmar	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Guillemot	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
							Collision risk

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Great black-backed gull	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Auskerry SPA	28.5	17.2	Arctic tern	Collision risk
Temporary habitat loss and/or habitat disturbance	✓	✗					✓
Distributional responses, displacement and barrier effects	✓	✓					✓
Disturbance to prey species and their habitats	✓	✓					✓
Storm petrel	Temporary habitat loss and/or habitat disturbance	✓				✗	✓
	Disturbance to prey species and their habitats	✓				✓	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase				
					C	O	D		
				Attraction to light	x	✓	x		
Hoy SPA	65.9	25.9	Fulmar	Collision risk	x	✓	x		
				Temporary habitat loss and/or habitat disturbance	✓	x	✓		
				Disturbance to prey species and their habitats	✓	✓	✓		
			Great black-backed gull	Collision risk	x	✓	x		
				Temporary habitat loss and/or habitat disturbance	✓	x	✓		
				Disturbance to prey species and their habitats	✓	✓	✓		
			Great skua	Temporary habitat loss and/or habitat disturbance	✓	x	✓		
				Disturbance to prey species and their habitats	✓	✓	✓		
			Guillemot	Temporary habitat loss and/or habitat disturbance	✓	x	✓		
				Distributional responses, displacement and barrier effects	✓	✓	✓		
				Disturbance to prey species and their habitats	✓	✓	✓		
			Kittiwake			Collision risk	x	✓	x

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase					
					C	O	D			
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓			
				Distributional responses, displacement and barrier effects	✓	✓	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Puffin	Temporary habitat loss and/or habitat disturbance	✓	✗	✓			
				Distributional responses, displacement and barrier effects	✓	✓	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Calf of Eday SPA	52.1	38.0	Fulmar	Collision risk	✗	✓	✗
							Temporary habitat loss and/or habitat disturbance	✓	✗	✓
							Disturbance to prey species and their habitats	✓	✓	✓
Great black-backed gull	Collision risk	✗				✓	✗			
	Temporary habitat loss and/or habitat disturbance	✓				✗	✓			
	Disturbance to prey species and their habitats	✓				✓	✓			

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Guillemot	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Rousay SPA	60.9	43.5	Fulmar	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Guillemot	Temporary habitat loss and/or habitat disturbance	✓	✗	✓



European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
North Orkney SPA	46.9	N/A – Migratory collision risk only occurs within the Array Area.	Great northern diver	Migratory collision risk	✗	✓	✗
			Red-throated diver	Migratory collision risk	✗	✓	✗
			Slavonian grebe	Migratory collision risk	✗	✓	✗
			Velvet scoter	Migratory collision risk	✗	✓	✗
Scapa Flow SPA	48.1	N/A – Migratory collision risk only occurs within the Array Area.	Black-throated diver	Migratory collision risk	✗	✓	✗

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Red-throated diver	Migratory collision risk	x	✓	x
			Eider	Migratory collision risk	x	✓	x
			Great northern diver	Migratory collision risk	x	✓	x
			Long-tailed duck	Migratory collision risk	x	✓	x
			Red-breasted merganser	Migratory collision risk	x	✓	x
			Shag	Migratory collision risk	x	✓	x
			Slavonian grebe	Migratory collision risk	x	✓	x
West Westray SPA	69.5	52.9	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Guillemot	Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase				
					C	O	D		
			Kittiwake	Collision risk	x	✓	x		
				Distributional responses, displacement and barrier effects	✓	✓	✓		
				Temporary habitat loss and/or habitat disturbance	✓	x	✓		
				Disturbance to prey species and their habitats	✓	✓	✓		
			Razorbill	Temporary habitat loss and/or habitat disturbance	✓	x	✓		
				Distributional responses, displacement and barrier effects	✓	✓	✓		
				Disturbance to prey species and their habitats	✓	✓	✓		
			Orkney Mainland Moors SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)	Red-throated diver	Temporary habitat loss and/or habitat disturbance	✓	x	✓
						Distributional responses, displacement and barrier effects	✓	✓	✓
Disturbance to prey species and their habitats	✓	✓				✓			
			Arctic skua	Temporary habitat loss and/or habitat disturbance	✓	x	✓		

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
Papa Westray (North Hill and Holm) SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)			Disturbance to prey species and their habitats	✓	✓	✓
Marwick Head SPA	72.0	60.6	Guillemot	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	✗	✓	✗
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Fair Isle SPA	81.4	64.3	Fulmar	Collision risk
Temporary habitat loss and/or habitat disturbance	✓	✗					✓
Disturbance to prey species and their habitats	✓	✓					✓
Gannet	Collision risk	✗				✓	✗

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Great skua	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Guillemot	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	✗	✓	✗
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase					
					C	O	D			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Puffin	Temporary habitat loss and/or habitat disturbance	✓	✗	✓			
				Distributional responses, displacement and barrier effects	✓	✓	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Razorbill	Temporary habitat loss and/or habitat disturbance	✓	✗	✓			
				Distributional responses, displacement and barrier effects	✓	✓	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Sule Skerry and Sule Stack SPA	131.4	93.3	Gannet	Collision risk	✗	✓	✗
							Temporary habitat loss and/or habitat disturbance	✓	✗	✓
							Distributional responses, displacement and barrier effects	✓	✓	✓
Disturbance to prey species and their habitats	✓	✓					✓			

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Guillemot	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Leach's storm petrel	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	✗	✓	✗
			Puffin	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Storm petrel	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	✗	✓	✗

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
Troup, Pennan and Lion's Heads SPA	130.3	93.8	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Guillemot	Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	x	✓	x
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Razorbill	Temporary habitat loss and/or habitat disturbance	✓	x	✓



European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Cape Wrath SPA	161.2	96.6	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Guillemot	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	x	✓	x
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase					
					C	O	D			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Puffin	Distributional responses, displacement and barrier effects	✓	✓	✓			
				Temporary habitat loss and/or habitat disturbance	✓	x	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Razorbill	Distributional responses, displacement and barrier effects	✓	✓	✓			
				Temporary habitat loss and/or habitat disturbance	✓	x	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Sumburgh Head SPA	123.3	108.2	Fulmar	Collision risk	x	✓	x
							Temporary habitat loss and/or habitat disturbance	✓	x	✓
							Disturbance to prey species and their habitats	✓	✓	✓
Guillemot	Temporary habitat loss and/or habitat disturbance	✓				x	✓			

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase				
					C	O	D		
				Distributional responses, displacement and barrier effects	✓	✓	✓		
				Disturbance to prey species and their habitats	✓	✓	✓		
			Kittiwake	Collision risk	✗	✓	✗		
				Distributional responses, displacement and barrier effects	✓	✓	✓		
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓		
						Disturbance to prey species and their habitats	✓	✓	✓
			Foula SPA	141.9	124.6	Fulmar	Collision risk	✗	✓
Temporary habitat loss and/or habitat disturbance	✓	✗					✓		
Disturbance to prey species and their habitats	✓	✓					✓		
Great skua	Temporary habitat loss and/or habitat disturbance	✓				✗	✓		
	Disturbance to prey species and their habitats	✓				✓	✓		

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Guillemot	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Puffin	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Razorbill	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	x	✓	x
				Distributional responses, displacement and barrier effects	✓	✓	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Leach's storm petrel	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	✗	✓	✗
Buchan Ness to Collieston Coast SPA	164.2	127.0	Fulmar	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Guillemot	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	✗	✓	✗

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Mousa SPA	139.4	127.2	Storm petrel	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	✗	✓	✗
Moray Firth SPA	140.5	N/A – Migratory collision risk only occurs within the Array Area.	Great northern diver	Migratory collision risk	✗	✓	✗
			Red-throated diver	Migratory collision risk	✗	✓	✗
			Shag	Migratory collision risk	✗	✓	✗
			Common scoter	Migratory collision risk	✗	✓	✗
			Eider	Migratory collision risk	✗	✓	✗
			Goldeneye	Migratory collision risk	✗	✓	✗
			Long-tailed duck	Migratory collision risk	✗	✓	✗

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Red-breasted merganser	Migratory collision risk	x	✓	x
			Scaup	Migratory collision risk	x	✓	x
			Slavonian grebe	Migratory collision risk	x	✓	x
			Velvet scoter	Migratory collision risk	x	✓	x
Noss SPA	157.7	142.2	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	x	✓	x
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Puffin	Distributional responses, displacement and barrier effects	✓	✓	✓
Temporary habitat loss and/or habitat disturbance	✓	x		✓			

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase					
					C	O	D			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Guillemot	Distributional responses, displacement and barrier effects	✓	✓	✓			
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Gannet	Collision risk	✗	✓	✗			
				Distributional responses, displacement and barrier effects	✓	✓	✓			
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Great skua	Temporary habitat loss and/or habitat disturbance	✓	✗	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
				175.1	N/A – Migratory collision risk only	Slavonian grebe	Migratory collision risk	✗	✓	✗



European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
East Mainland Coast, Shetland SPA		occurs within the Array Area.	Great northern diver	Migratory collision risk	x	✓	x
			Red-throated diver	Migratory collision risk	x	✓	x
Handa SPA	187.2	159.3	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Great skua	Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	x	✓	x
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			North Rona and Sula Sgeir SPA	218.6	165.6	Fulmar	Collision risk
Temporary habitat loss and/or habitat disturbance	✓	x					✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	x	✓	x
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Puffin	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Gannet	Collision risk	x	✓	x
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase					
					C	O	D			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Leach's storm petrel	Temporary habitat loss and/or habitat disturbance	✓	x	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
				Attraction to light	x	✓	x			
			Storm petrel	Temporary habitat loss and/or habitat disturbance	✓	x	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
				Attraction to light	x	✓	x			
			Inner Moray Firth SPA and Ramsar Site	192.2	N/A – Migratory collision risk only occurs within the Array Area.	Cormorant	Migratory collision risk	x	✓	x
						Common tern	Migratory collision risk	x	✓	x
Red-breasted merganser	Migratory collision risk	x				✓	x			
Scaup	Migratory collision risk	x				✓	x			
Ronas Hill – North Roe and Tingon SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)		Great skua	Temporary habitat loss and/or habitat disturbance	✓	x	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Red-throated diver	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Otterswick and Graveland SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)		Red-throated diver	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Ramna Stacks and Gruney SPA	206.0	193.6	Leach’s storm petrel	Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	x	✓	x
Fetlar SPA	208.3	188.0	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase					
					C	O	D			
			Great skua (non-breeding only)	Temporary habitat loss and/or habitat disturbance	✓	✗	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Arctic skua (non-breeding only)	Temporary habitat loss and/or habitat disturbance	✓	✗	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Hermaness, Saxa Vord and Valla Field SPA	230.9	207.1	Fulmar	Collision risk	✗	✓	✗
							Temporary habitat loss and/or habitat disturbance	✓	✗	✓
							Disturbance to prey species and their habitats	✓	✓	✓
						Kittiwake	Collision risk	✗	✓	✗
Distributional responses, displacement and barrier effects	✓	✓					✓			
Temporary habitat loss and/or habitat disturbance	✓	✗					✓			
Disturbance to prey species and their habitats	✓	✓					✓			
Puffin	Distributional responses, displacement and barrier effects	✓				✓	✓			

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase					
					C	O	D			
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Gannet	Collision risk	✗	✓	✗			
				Distributional responses, displacement and barrier effects	✓	✓	✓			
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Great skua	Temporary habitat loss and/or habitat disturbance	✓	✗	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Fowlsheugh SPA	220.2	208.8	Fulmar	Collision risk	✗	✓	✗
							Temporary habitat loss and/or habitat disturbance	✓	✗	✓
Disturbance to prey species and their habitats	✓	✓					✓			
Kittiwake	Collision risk	✗				✓	✗			

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Priest Island (Summer Isles) SPA	244.3	216.4	Storm petrel	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	✗	✓	✗
Lewis Peatlands SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)		Red-throated diver	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Shiant Isles SPA	312.8	241.2	Fulmar	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase					
					C	O	D			
			Kittiwake	Collision risk	x	✓	x			
				Distributional responses, displacement and barrier effects	✓	✓	✓			
				Temporary habitat loss and/or habitat disturbance	✓	x	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Razorbill	Distributional responses, displacement and barrier effects	✓	✓	✓			
				Temporary habitat loss and/or habitat disturbance	✓	x	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Puffin	Distributional responses, displacement and barrier effects	✓	✓	✓			
				Temporary habitat loss and/or habitat disturbance	✓	x	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Firth of Tay and Eden Estuary SPA	277.0	N/A – Migratory collision risk only	Common Scoter	Collision risk	x	✓	x



European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
and Ramsar site (migratory SPA)		occurs within the Array Area.	Eider	Collision risk	x	✓	x
			Cormorant	Collision risk	x	✓	x
			Long-tailed duck	Collision risk	x	✓	x
			Red-breasted Merganser	Collision risk	x	✓	x
			Velvet Scoter	Collision risk	x	✓	x
Outer Firth of Forth and St Andrews Bay Complex SPA	301.8	N/A – Migratory collision risk only occurs within the Array Area.	Red-throated diver	Migratory collision risk	x	✓	x
			Shag	Migratory collision risk	x	✓	x
			Little gull	Migratory collision risk	x	✓	x
			Eider	Migratory collision risk	x	✓	x
			Slavonian grebe	Migratory collision risk	x	✓	x

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Waterfowl assemblage components: •Common scoter •Goldeneye •Long-tailed duck •Red-breasted merganser •Velvet scoter	Migratory collision risk	x	✓	x
Firth of Forth SPA and Ramsar Site	321.1	N/A – Migratory collision risk only occurs within the Array Area.	Red-throated diver	Migratory collision risk	x	✓	x
			Slavonian grebe	Migratory collision risk	x	✓	x
			Waterfowl assemblage (non-breeding): •Cormorant •Common scoter •Long-tailed duck •Red-breasted merganser •Velvet scoter	Migratory collision risk	x	✓	x

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
Forth Islands SPA	309.4	253.6	Gannet	Collision risk	x	✓	x
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	x	✓	x
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Puffin	Distributional responses, displacement and barrier effects	✓	✓	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Lesser black-backed gull (non-breeding only)	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Cormorant (non-breeding only)	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Shag	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Razorbill	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Herring gull	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Flannan Isles SPA	321.1	257.6	Fulmar	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Leach's storm petrel	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	✗	✓	✗
			Kittiwake	Collision risk	✗	✓	✗

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase				
					C	O	D		
				Distributional responses, displacement and barrier effects	✓	✓	✓		
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓		
				Disturbance to prey species and their habitats	✓	✓	✓		
			Razorbill (non-breeding only)	Temporary habitat loss and/or habitat disturbance	✓	✗	✓		
				Distributional responses, displacement and barrier effects	✓	✓	✓		
				Disturbance to prey species and their habitats	✓	✓	✓		
			Canna and Sanday SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)	Herring gull	Collision risk	✗	✓	✗
						Temporary habitat loss and/or habitat disturbance	✓	✗	✓
						Disturbance to prey species and their habitats	✓	✓	✓
Kittiwake	Collision risk	✗			✓	✗			
	Distributional responses, displacement and barrier effects	✓			✓	✓			

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
St Abb's Head to Fast Castle SPA	327.2	286.6	Herring gull (non-breeding only)	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	✗	✓	✗
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Razorbill (non-breeding only)	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Shag (non-breeding only)	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Mointeach Scadabhaigh SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)		Red-throated diver	Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Farne Islands SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)		Cormorant	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	✗	✓	✗
				Distributional responses, displacement and barrier effects	✓	✓	✓



European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase					
					C	O	D			
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Puffin	Distributional responses, displacement and barrier effects	✓	✓	✓			
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Shag	Distributional responses, displacement and barrier effects	✓	✓	✓			
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Rum SPA	377.4	349.5	Manx shearwater	Collision risk	✗	✓	✗
							Temporary habitat loss and/or habitat disturbance	✓	✗	✓
Disturbance to prey species and their habitats	✓	✓					✓			
Attraction to light	✗	✓					✗			

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
North Colonsay and Western Cliffs SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)		Kittiwake	Collision risk	x	✓	x
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
St Kilda SPA	437.7	365.7	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Gannet	Collision risk	x	✓	x
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Great skua	Temporary habitat loss and/or habitat disturbance	✓	x	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase				
					C	O	D		
				Disturbance to prey species and their habitats	✓	✓	✓		
			Leach's storm petrel	Temporary habitat loss and/or habitat disturbance	✓	✗	✓		
				Disturbance to prey species and their habitats	✓	✓	✓		
				Attraction to light	✗	✓	✗		
			Manx shearwater	Collision risk	✗	✓	✗		
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓		
				Disturbance to prey species and their habitats	✓	✓	✓		
				Attraction to light	✗	✓	✗		
			Coquet Island SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)	Puffin	Distributional responses, displacement and barrier effects	✓	✓	✓
						Temporary habitat loss and/or habitat disturbance	✓	✗	✓
Disturbance to prey species and their habitats	✓	✓				✓			
Mingulay and Berneray SPA	416.6	388.7	Fulmar	Collision risk	✗	✓	✗		
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓		

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Disturbance to prey species and their habitats	✓	✓	✓
Flamborough and Filey Coast SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)		Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Gannet	Collision risk	x	✓	x
				Distributional responses, displacement and barrier effects	✓	✓	✓
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Herring gull	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Kittiwake	Collision risk	x	✓	x
				Distributional responses, displacement and barrier effects	✓	✓	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase				
					C	O	D		
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓		
				Disturbance to prey species and their habitats	✓	✓	✓		
			Puffin	Distributional responses, displacement and barrier effects	✓	✓	✓		
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓		
				Disturbance to prey species and their habitats	✓	✓	✓		
			Razorbill	Distributional responses, displacement and barrier effects	✓	✓	✓		
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓		
				Disturbance to prey species and their habitats	✓	✓	✓		
			Lough Neagh and Lough Beg SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)	Lesser black-backed gull	Collision risk	✗	✓	✗
						Temporary habitat loss and/or habitat disturbance	✓	✗	✓
Disturbance to prey species and their habitats	✓	✓				✓			

Ayre Offshore Wind Farm Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
Bowland Fells SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)		Lesser black-backed gull	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Rathlin Island SPA	578.3	550.4	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Horn Head to Fanad Head SPA	597.8	569.9	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Tory Island SPA	610.3	582.4	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
West Donegal Coast SPA	630.2	603.5	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase					
					C	O	D			
				Disturbance to prey species and their habitats	✓	✓	✓			
Ailsa Craig SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)		Gannet	Collision risk	x	✓	x			
				Distributional responses, displacement and barrier effects	✓	✓	✓			
				Temporary habitat loss and/or habitat disturbance	✓	x	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Kittiwake	Collision risk	x	✓	x			
				Distributional responses, displacement and barrier effects	✓	✓	✓			
				Temporary habitat loss and/or habitat disturbance	✓	x	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
			Herring gull	Collision risk	x	✓	x			
				Temporary habitat loss and/or habitat disturbance	✓	x	✓			
				Disturbance to prey species and their habitats	✓	✓	✓			
							Collision risk	x	✓	x

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Lesser black-backed gull	Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Copeland Islands SPA	665.4	637.5	Manx shearwater	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	✗	✓	✗
Outer Ards Ramsar site	663.2	635.3	Manx shearwater	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	✗	✓	✗
Morecambe Bay and Duddon Estuary SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)		Herring gull	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓



Ayre Offshore Wind Farm Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
Lambay Island SPA	816.9	789.0	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Clare Island SPA	828.2	800.3	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
High Island, Inishshark and Davillaun SPA	843.6	815.7	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Ribble and Alt Estuaries SPA and Ramsar site	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)		Lesser black-backed gull	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓

Ayre Offshore Wind Farm Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
Cruagh Island SPA	853.6	825.7	Manx shearwater	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	x	✓	x
Alde-Ore Estuary SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)		Herring gull	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Lesser black-backed gull	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA	881.1	860.2	Manx shearwater	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	x	✓	x

Ayre Offshore Wind Farm Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
Cliffs of Moher SPA	936.5	908.6	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Kerry Head SPA	979.6	951.7	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Saltee Islands SPA	991.4	963.5	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Dingle Peninsula SPA	992.0	964.1	Fulmar	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓
				Disturbance to prey species and their habitats	✓	✓	✓
Skomer, Skokholm and the	994.5	966.7	Manx shearwater	Collision risk	x	✓	x
				Temporary habitat loss and/or habitat disturbance	✓	x	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
Seas off Pembrokeshire				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	✗	✓	✗
Grassholm SPA	1,001.3	973.4	Manx shearwater	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	✗	✓	✗
Basket Islands SPA	1,021.6	993.7	Fulmar	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Manx shearwater	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	✗	✓	✗
Puffin Island SPA	1,053.9	1,026.0	Fulmar	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Disturbance to prey species and their habitats	✓	✓	✓
			Manx shearwater	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	✗	✓	✗
Skelligs SPA	1,061.1	1,033.2	Fulmar	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
			Manx shearwater	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	✗	✓	✗
Deenish Island and Scariff Island SPA	1,070.6	1,042.7	Fulmar	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
				Disturbance to prey species and their habitats	✓	✓	✓
			Manx shearwater	Collision risk	✗	✓	✗
				Temporary habitat loss and/or habitat disturbance	✓	✗	✓
				Disturbance to prey species and their habitats	✓	✓	✓
				Attraction to light	✗	✓	✗
Isles of Scilly SPA	N/A – assessed during the non-breeding season where connectivity is defined within Furness (2015)	Great black-backed gull	Collision risk	✗	✓	✗	
			Temporary habitat loss and/or habitat disturbance	✓	✗	✓	
			Disturbance to prey species and their habitats	✓	✓	✓	
		Lesser black-backed gull	Collision risk	✗	✓	✗	
			Temporary habitat loss and/or habitat disturbance	✓	✗	✓	
			Disturbance to prey species and their habitats	✓	✓	✓	
<b>Onshore ornithology SPA</b>							
East Sanday Coast SPA and Ramsar site	48.6	N/A – Migratory collision risk only occurs within the Array Area.	Bar-tailed godwit	Migratory collision risk	✗	✓	✗
			Purple sandpiper	Migratory collision risk	✗	✓	✗

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Turnstone	Migratory collision risk	x	✓	x
Switha SPA	49.6	N/A – Migratory collision risk only occurs within the Array Area.	Greenland barnacle goose	Migratory collision risk	x	✓	x
Caithness Lochs SPA and Ramsar site	81.3	N/A – Migratory collision risk only occurs within the Array Area.	Greenland white-fronted goose	Migratory collision risk	x	✓	x
			Greylag goose	Migratory collision risk	x	✓	x
			Whooper swan	Migratory collision risk	x	✓	x
North Sutherland Coastal Islands SPA	132.7	N/A – Migratory collision risk only occurs within the Array Area.	Greenland barnacle goose	Migratory collision risk	x	✓	x
Loch of Strathbeg SPA and Ramsar site	139.2	N/A – Migratory collision risk only occurs within the Array Area.	Greylag goose	Migratory collision risk	x	✓	x
			Pink-footed goose	Migratory collision risk	x	✓	x
			Svalbard barnacle goose	Migratory collision risk	x	✓	x
			Whooper swan	Migratory collision risk	x	✓	x

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Goldeneye</li> <li>• Teal</li> </ul>	Migratory collision risk	x	✓	x
Dornoch Firth and Loch Fleet SPA and Ramsar site	154.0	N/A – Migratory collision risk only occurs within the Array Area.	Bar-tailed godwit	Migratory collision risk	x	✓	x
			Greylag goose	Migratory collision risk	x	✓	x
			Wigeon	Migratory collision risk	x	✓	x
			Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Curlew</li> <li>• Dunlin</li> <li>• Oystercatcher</li> <li>• Redshank</li> <li>• Scaup</li> <li>• Teal</li> </ul>	Migratory collision risk	x	✓	x



European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
Moray and Nairn Coast SPA	159.7	N/A – Migratory collision risk only occurs within the Array Area.	Bar-tailed godwit	Migratory collision risk	x	✓	x
			Greylag goose	Migratory collision risk	x	✓	x
			Pink-footed goose	Migratory collision risk	x	✓	x
			Redshank	Migratory collision risk	x	✓	x
			Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Dunlin</li> <li>• Oystercatcher</li> <li>• Red-breasted merganser</li> <li>• Wigeon</li> </ul>	Migratory collision risk	x	✓	x
	170.2	N/A – Migratory collision risk only	Pink-footed goose	Migratory collision risk	x	✓	x

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
Ythan Estuary and Meikle Loch SPA and Ramsar site		occurs within the Array Area.	Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Eider</li> <li>• Lapwing</li> <li>• Redshank</li> </ul>	Migratory collision risk	x	✓	x
Cromarty Firth SPA and Ramsar site	177.7	N/A – Migratory collision risk only occurs within the Array Area.	Bar-tailed godwit	Migratory collision risk	x	✓	x
			Whooper swan	Migratory collision risk	x	✓	x

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Curlew</li> <li>• Dunlin</li> <li>• Greylag goose</li> <li>• Knot</li> <li>• Oystercatcher</li> <li>• Pintail</li> <li>• Red-breasted merganser</li> <li>• Redshank</li> <li>• Scaup</li> <li>• Wigeon</li> </ul>	Migratory collision risk	x	✓	x
Inner Moray Firth SPA and Ramsar site	192.2	N/A – Migratory collision risk only occurs within the Array Area.	Bar-tailed godwit	Migratory collision risk	x	✓	x
			Greylag goose	Migratory collision risk	x	✓	x
			Osprey	Migratory collision risk	x	✓	x
			Redshank	Migratory collision risk	x	✓	x

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Curlew</li> <li>• Goldeneye</li> <li>• Goosander</li> <li>• Oystercatcher</li> <li>• Teal</li> <li>• Wigeon</li> </ul>	Migratory collision risk	x	✓	x
Montrose Basin SPA and Ramsar site	240.1	N/A – Migratory collision risk only occurs within the Array Area.	Greylag goose	Migratory collision risk	x	✓	x
			Pink-footed goose	Migratory collision risk	x	✓	x
			Redshank	Migratory collision risk	x	✓	x

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Dunlin</li> <li>• Eider</li> <li>• Knot</li> <li>• Oystercatcher</li> <li>• Shelduck</li> <li>• Wigeon</li> </ul>	Migratory collision risk	x	✓	x
Firth of Tay and Eden Estuary SPA and Ramsar site	277.0	N/A – Migratory collision risk only occurs within the Array Area.	Bar-tailed godwit	Migratory collision risk	x	✓	x
			Greylag goose	Migratory collision risk	x	✓	x
			Pink-footed goose	Migratory collision risk	x	✓	x
			Redshank	Migratory collision risk	x	✓	x

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Waterfowl assemblage (non-breeding) components: <ul style="list-style-type: none"> <li>• Dunlin</li> <li>• Goldeneye</li> <li>• Goosander</li> <li>• Grey plover</li> <li>• Icelandic black-tailed godwit</li> <li>• Oystercatcher</li> <li>• Sanderling</li> <li>• Shelduck</li> </ul>	Migratory collision risk	x	✓	x
Firth of Forth SPA and Ramsar site	321.1	N/A – Migratory collision risk only occurs within the Array Area.	Bar-tailed godwit	Migratory collision risk	x	✓	x
			Golden plover	Migratory collision risk	x	✓	x
			Knot	Migratory collision risk	x	✓	x
			Pink-footed goose	Migratory collision risk	x	✓	x
			Redshank	Migratory collision risk	x	✓	x
			Shelduck	Migratory collision risk	x	✓	x

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Turnstone	Migratory collision risk	x	✓	x
			Waterfowl assemblage (non-breeding): <ul style="list-style-type: none"> <li>• Curlew</li> <li>• Dunlin</li> <li>• Eider</li> <li>• Goldeneye</li> <li>• Great crested grebe</li> <li>• Grey plover</li> <li>• Lapwing</li> <li>• Long-tailed duck</li> <li>• Mallard</li> <li>• Oystercatcher</li> <li>• Ringed plover</li> <li>• Scaup</li> <li>• Wigeon</li> </ul>	Migratory collision risk	x	✓	x
	312.7	N/A – Migratory collision risk only	Bar-tailed godwit	Migratory collision risk	x	✓	x

European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
Lindisfarne Ramsar Site		occurs within the Array Area.	Greylag goose	Migratory collision risk	x	✓	x
			Light-bellied brent goose	Migratory collision risk	x	✓	x
			Redshank	Migratory collision risk	x	✓	x
			Ringed plover	Migratory collision risk	x	✓	x
			Wigeon	Migratory collision risk	x	✓	x
Lindisfarne SPA	336.8	N/A – Migratory collision risk only occurs within the Array Area.	Bar-tailed godwit	Migratory collision risk	x	✓	x
			Common scoter	Migratory collision risk	x	✓	x
			Dunlin	Migratory collision risk	x	✓	x
			Eider	Migratory collision risk	x	✓	x
			Golden plover	Migratory collision risk	x	✓	x
			Greylag goose	Migratory collision risk	x	✓	x
			Grey plover	Migratory collision risk	x	✓	x
			Light-bellied brent goose	Migratory collision risk	x	✓	x
			Long-tailed duck	Migratory collision risk	x	✓	x
			Red-breasted merganser	Migratory collision risk	x	✓	x
			Redshank	Migratory collision risk	x	✓	x



European site	Distance to Array Area (km)	Distance to Proposed Development Export Cable Corridor (km)	Relevant qualifying feature	Impact	Relevant Project Phase		
					C	O	D
			Ringed plover	Migratory collision risk	x	✓	x
			Sanderling	Migratory collision risk	x	✓	x
			Shelduck	Migratory collision risk	x	✓	x
			Whooper swan	Migratory collision risk	x	✓	x
			Wigeon	Migratory collision risk	x	✓	x
Northumbria Coast SPA	396.1	N/A – Migratory collision risk only occurs within the Array Area.	Purple sandpiper	Migratory collision risk	x	✓	x
			Turnstone	Migratory collision risk	x	✓	x

(✓= Potential for LSE During Project Phase, C = Construction, O= Operation and Maintenance, D= Decommissioning)

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