

Stromar Offshore Wind Farm

Habitats Regulations Appraisal

Stage 1: 'Shadow' Screening

Proposed Onshore Development

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Executive Summary

This Onshore Habitats Regulations Appraisal (HRA) Screening Report presents the conclusions of the shadow HRA Screening, undertaken for the Proposed Onshore Development associated with the proposed Stromar Offshore Wind Farm (the Project). A separate Offshore HRA Screening Report has been submitted to the Marine Directorate on behalf of Scottish Ministers for the Offshore Wind Farm Array and associated offshore infrastructure (Orsted, 2023c).

An application for planning permission will be made under the Town and Country Planning (Scotland) Act 1997 (as amended) for the Proposed Onshore Development. This will be accompanied by an Environmental Impact Assessment (EIA) Report and sufficient information to address the requirements of Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (the "Habitats Directive") as implemented in Scotland by the Conservation (Natural Habitats, &c) Regulations 1994 (as amended) (the 'Habitats Regulations').

The Project will be located off the north-east coast of Scotland approximately 50 km east of Wick. The Project is being developed by a consortium of Ørsted, BlueFloat Energy and Renantis. Ørsted is leading the development of the Project, supported by BlueFloat Energy and Renantis.

The Proposed Onshore Development to which this HRA Screening Report relates will include all onshore infrastructure associated with the Project landward of Mean Low Water Springs (MLWS). All of the Proposed Onshore Development will be wholly located within Aberdeenshire Council's local authority area. The Proposed Onshore Development will include Onshore Export Cables to connect to Offshore Export Cables at landfall, and a new Onshore Substation/Converter Station. An Onshore Reactive Compensation Station may also be needed. Landfall will be made along the Aberdeenshire Coastline between Rosehearty and Fraserburgh. It is anticipated that the grid connection will be made at New Deer 2 substation, a new 400 kilovolt (kV) substation to be developed by Scottish and Southern Electricity Networks Transmission (SSEN Transmission) near to the existing New Deer substation. It is expected that the Onshore Export Cable route will be approximately 30 km long.

This Onshore HRA Screening Report provides the necessary information required by the Competent Authority (Aberdeenshire Council) under the Habitats Regulations, to determine the potential for a Likely Significant Effect (LSE) in relation to the conservation objectives of certain protected sites during the construction, operation & maintenance and decommissioning of the Proposed Onshore Development either alone or in combination with other plans or projects. The information is provided with respect to European sites (the UK Site Network) which includes Special Areas of Conservation (SACs) and Special Protection areas (SPAs). Ramsar sites are included as a matter of government policy. The approach to Screening has been informed by relevant guidance, recent Scottish examples and project level consultation.

The conclusions of the Report include the identification of the potential for LSE for a number of designated sites and features. Project mitigation has not been taken into consideration during the screening process. Where potential for LSE applies, these sites will be taken forward for assessment alone and in-combination in HRA Stage Two, with a Report to Inform Appropriate Assessment (RIAA) to be subsequently prepared.

The sites and features where potential for LSEs have been identified will be taken forward for assessment in the RIAA and the potential for adverse effect on integrity (AEOI) considered with respect to the pressures associated with activities linked to each stage of the Proposed Onshore Development.

For non-avian ecology, screening has identified the following features where potential exists for LSE in the absence of mitigation and/ or further assessment:

- Turclossie Moss SAC – Active raised bog and degraded raised bog; and
- Moray Firth SAC- bottlenose dolphin.

For onshore and intertidal ornithology, screening has been undertaken with respect to the following to account for species ecology:

- Breeding seabirds in the breeding season that occur onshore;
- Breeding seabirds in the non-breeding season that occur onshore;
- Non-breeding seabirds; and
- Migratory waterbirds.

The approach to screening for these species is undertaken thus:

- 1) Applying a predefined set of criteria to identify potential connectivity to the Project (but does not necessarily equate to a potential for LSE); and
- 2) Applying published guidance and literature, together with an understanding of migratory bird risk, to determine the potential for LSE in each instance.

A total of four species from two SPAs and two Ramsars have been identified as having potential LSEs.

For onshore and intertidal ornithology, screening has identified the following features where potential exists for LSE in the absence of mitigation and/ or further assessment:

- Loch of Strathbeg SPA and Ramsar (Barnacle goose (Svalbard); pink-footed goose and greylag goose); and
- Ythan Estuary, Sands of Forvie, and Meikle Loch SPA and Ramsar (pink-footed goose and eider).

The sites and features where potential for LSE have been identified will be taken forward for assessment in the RIAA and the potential for adverse effect on integrity (AEOI) considered with respect to the pressures associated with activities linked to each stage of the Project.

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Glossary of Terminology

Term	Definition
Approved of Matters Specified in Conditions (AMSC)	The second stage of a Planning Permission in Principle (PPP) application under the Town and Country Planning (Scotland) Act 1997 (as amended) when the approval, consent or agreement of the Planning Authority for any detailed aspects of the development is sought.
Array Area	The area in which the generation infrastructure will be located, including Wind Turbine Generators and associated foundations, inter-array/interconnector cables, and offshore substations.
Biodiversity Restoration Enhancement Plan (BREP)	Required under National Planning Framework 4 (NPF4) which sets out new requirements for developments to deliver positive effects, primarily under Policy 3 - this states that all development will contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats.
Cable Protection	Cable protection may be placed on the seabed to protect cables from hazards.
Commitment	A term used interchangeably with mitigation and enhancement measures. Commitments are Embedded Mitigation Measures. The purpose of Commitments is to reduce and/or eliminate Likely Significant Effect (LSE), in EIA terms.
Cumulative Effects	The combined potential effect of the Project in combination with the potential effects from consented and future projects, on the same single receptor/resource. Cumulative effects also refers to potential effects from both the Proposed Offshore Development and Proposed Onshore Development on the same receptor.
Design Envelope	Project parameters that are used in the Environmental Impact Assessment (EIA) for the Stromar Offshore Wind Farm. This comprises a description of the range of possible elements that make up the project design options under consideration, as set out in detail in the project description when the exact engineering parameters are not yet known. This is often referred to as a "Rochdale Envelope" approach.
Developer	Stromar Offshore Wind Farm Limited. A consortium comprising Ørsted, Renantis, and BlueFloat Energy.
Effect	Term used to express the consequences of an impact. 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.
EIA Directive	European Union Directive 85/337/EEC, as amended by Directive 97/11/EC, 2003/35/EC and 2009/31/EC and then codified by Directive 2011/92/EU of 13 December 2011 (as amended in 2014 by Directive 2014/52/EU).

Term	Definition
EIA Regulations	The collective term used to refer to the following: The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017; The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017; and The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017.
Embedded Mitigation	Primary (design) and tertiary (inherent) mitigation measures that are included in the design of the project.
Energy Balancing Infrastructure	All of the equipment and associated infrastructure required to provide whole energy system services. This may include importing, storing and exporting energy to meet grid needs, improving grid stability and reliability, or providing additional services such as system monitoring and computing. This will be subject to a separate consent application.
Enhancement Commitment	Commitments made by the project to provide broader environmental enhancement that Stromar seek to deliver across a range of environmental aspects. Enhancement commitments are not required to mitigate environmental impacts of the project.
Environmental Impact Assessment	A statutory process whereby planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements on the EIA Directive and EIA Regulations, including the publication of an Environmental Impact Assessment (EIA) Report.
Foundations	The foundations on which the wind turbine generators or offshore substations are installed. These can be floating or fixed to the seabed.
Foundation Anchors	The mooring structures which anchor the (floating) foundations to the seabed.
Grid Connection Cables	The buried electrical cables running from the Onshore Substation/Converter Station to the proposed New Deer 2 Substation.
Grid Connection Cable Corridor	The temporary working corridor within which the Grid Connection Cables will be laid.
Habitats Regulations Appraisal (HRA)	A process which helps determine likely significant effects and (where appropriate) assesses adverse impacts on the integrity of European conservation sites and Ramsar sites. The process consists of up to four stages of assessment: screening, appropriate assessment, assessment of alternative solutions and assessment of imperative reasons of over-riding public interest (IROPI).
High Voltage Alternating Current (HVAC)	High voltage alternating current is the bulk transmission of electricity by alternating current (AC), whereby the flow of electric charge periodically reverses direction.

Term	Definition
High Voltage Direct Current (HVDC)	High voltage direct current is the bulk transmission of electricity by direct current (DC), whereby the flow of electric charge is in one direction.
Horizontal Directional Drilling (HDD)	A method of cable installation where the cable is drilled beneath a feature without the need for trenching.
In-Combination Effects	Used to refer to the effects of the Project on a European Site in-combination with other relevant plans and projects with the potential to contribute to a Likely Significant Effect on or adverse effect on the integrity of that European Site.
Inter-array Cables	Cables which link the Wind Turbine Generators to each other and the Offshore Substation(s).
Interconnector Cables	Cables which link the Offshore Substations to one another.
Inter-related Effects	Effects through different phases of the Project and the cumulation of different environmental impacts on the same receptor – e.g. construction noise and construction dust.
Intertidal Area	The area located between Mean Low Water Springs (MLWS) and Mean High Water Springs (MHWS).
Joint bay	An excavation located at regular intervals along the cable route consisting of a concrete flat base slab constructed beneath the ground to facilitate the jointing together of the cables.
Landfall	The location (from Mean Low Water Springs) where the Offshore Export Cables will interface with and are connected to the Onshore Export Cables at a transition joint bay.
Landfall Area of Search	The broad area in which the landfall(s) being considered are located and where ultimately the final Landfall will be located.
Likely Significant Effects	It is a requirement of Environmental Impact Assessment Regulations to determine the Likely Significant Effects of the Proposed Development on the environment which should relate to the level of an effect and the type of effect.
Link Box	Smaller pit than a joint bay, which house connections between the cable shielding, joints for fibre optic cables and other auxiliary equipment.
Marine Directorate (MD)	The Directorate responsible for the integrated management of Scottish waters. Acts on behalf of the Scottish Ministers.
Marine Directorate – Licensing Operations Team (MD-LOT)	The division of MD responsible for the regulation of marine licence applications within the Scottish inshore region (between 0 and 12 nm) under the Marine (Scotland) Act 2010 and in the Scottish offshore region (between 12 and 200 nm) under the Marine and Coastal Access Act 2009.

Term	Definition
Marine Directorate – Science, Evidence, Data and Digital (MD-SEDD)	The scientific division of Marine Directorate, responsible for provision of expert scientific, economic and technical advice and services on issues relating to fisheries, aquaculture, marine renewable energy. MD-SEDD provides the evidence to support the policies and regulatory activities of the Scottish Government through a programme of monitoring and research as well as performing regulatory and enforcement activities.
Marine Licence	Licence granted under the Marine (Scotland) Act 2010 and also under the Marine and Coastal Access Act 2009 if relevant.
Maximum Design Scenario	The maximum design parameters for each Project design component (both onshore and offshore) considered to be a worst case for any given assessment.
National Site Network	The UK’s network of sites designated under the EU Habitats and Birds Directives.
New Deer 2 Substation	The new 400 kV substation being developed near the existing New Deer substation. The new substation will enable the connection of a new 400 kV overhead line between Beauly, Blackhillock, New Deer and Peterhead. This substation does not form part of the Proposed Onshore Development for the Stromar Offshore Wind Farm project and is the subject of a separate consent application by Scottish and Southern Electricity Networks (SEN).
Non-statutory Consultee	Organisations that the Planning Authority and/ or Marine Directorate may choose to engage (if, for example, there are planning policy reasons to do so) who are not designated in law but are likely to have an interest in a proposed development.
Offshore Export Cable(s)	The subsea electricity cable(s) running from the Offshore Substation(s) to the transition joint bay at the landfall, which transmit the electricity generated by the offshore wind farm to the onshore export cable(s) for transmission onwards to the onshore substation and the national electrical transmission system.
Offshore Export Cable Corridor (ECC)	The specific corridor of seabed (seaward of Mean High Water Springs (MHWS)) from array area to the landfall, within which the offshore export cable(s) will be located.
Offshore Export Cable Corridor Study Area	The broad area in which the offshore export corridor(s) being considered are located and where the preferred offshore export cable corridor and ultimately the final offshore export cable route will be located.
Offshore Project Boundary	The boundary within which all offshore development will take place.
Offshore Scoping Report	The Scoping Report setting out the proposed contents of the Offshore EIAR and provided to Marine Directorate Licencing Operations Team (MD-LOT) to support the request for a Scoping Opinion.
Offshore Substation	Offshore platforms potentially consisting of a combination of High Voltage Alternating Current (HVAC) substations, High Voltage Direct Current (HVDC) converter stations and/or a combined HVAC/HVDC substation depending on the final electrical set up of the project.

Term	Definition
Offshore Scoping Opinion	The Scoping Opinion that will be provided by Marine Directorate Licensing Operations Team (MD-LOT) under the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 and the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017, setting out the Scottish Ministers' opinion on the content of the Offshore EIAR including those issues that will or will not need to be addressed in the Offshore EIA.
Offshore Transmission Works	The proposed transmission infrastructure comprising: Offshore Substation(s) and associated foundations and substructures; the offshore export cable(s); and the landfall area up to Mean High Water Springs (MHWS).
Offshore Wind Farm	Infrastructure comprising wind turbines and associated foundations and substructures, Substation Platform(s) and associated foundations, export cables and inter-array/interconnector cables.
Onshore Export Cables	The cables running from the transition joint bay at Landfall to the Onshore Substation/Converter Station.
Onshore Export Cable Corridor (OnECC)	The temporary working corridor within which the Onshore Export Cables will be laid. This will typically be approximately 100m wide, though may be wider in areas where additional temporary working areas for watercourse and infrastructure/utilities crossings are required. This corridor will contain up to three cable trenches plus temporary soil storage areas, a temporary haul road and temporary drainage arrangements.
Onshore Export Cable Corridor Area of Search	The broad area in which the Onshore Export Corridor(s) being considered are located and where the preferred Onshore Export Cable Corridor and ultimately the final onshore export cable route will be located.
Onshore Reactive Compensation Station Area of Search	The broad area in which the Onshore Reactive Compensation Station is being considered to be located and where the final Onshore Reactive Compensation Station will be located.
Onshore Scoping Area	An area defined at the Scoping stage. The boundary within which all onshore development will be located.
Onshore Scoping Opinion	The Scoping Opinion that will be provided by the Planning Authority under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017, setting out their opinion on the content of the Onshore EIAR including those issues that will or will not need to be addressed in the Onshore EIA.
Onshore Scoping Report	Report assessing all onshore infrastructure of the project landward of MLWS and provided to the Planning Authority to support the request for an Onshore Scoping Opinion.
Onshore Substation Area of Search	The broad area in which the Onshore Substation/Converter Station is being considered to be located and where the final Onshore Substation/Converter Station will be located.

Term	Definition
Onshore Substation/Converter Station	Comprises a compound containing the electrical components for transforming the power supplied from Stromar to 400 kV and to adjust the power quality and power factor, as required to meet the UK System-Operator Code for supply to the national electricity transmission network. If a HVDC system is used the Onshore Substation will also house equipment to convert the power from HVDC to HVAC.
Onshore Transmission Works	All proposed onshore infrastructure, associated with the Stromar Offshore Wind Farm project above mean low water springs, including the construction and operation of an Onshore Substation/Converter Station, Onshore Export Cables and associated development including Transition Joint Bay, Link Boxes and Joint Bays. This includes all temporary and permanent works.
Option to Lease Agreement	'Lease/Lease Agreement' is a legal agreement from Crown Estate Scotland whereby an area of foreshore or seabed is occupied by a third party (a 'tenant') for an agreed purpose, such as renewable energy, and which gives consent for the tenant to develop on the lease site(s) if other required permissions are gained.
Order Limits	The onshore, intertidal, and/ or offshore limits within which Stromar may be carried out.
Planning Authority	The primary responsibility for the delivery of the planning service in Scotland lies with the 32 local authorities and the two national park authorities. Aberdeenshire Council is the Planning Authority for the entirety of the onshore project footprint.
Planning Permission In Principle (PPP)	An alternative consenting route under Section 59 of the Town and Country Planning (Scotland) Act 1997 (as amended) which separates the consideration of matters of principle for a proposed development from the final detailed design of the development. The permission in principle consent route has two application stages: the first stage (the permission in principle application) seeks to establish whether a site is suitable in principle and is granted subject to conditions requiring the approval of certain matters before the development can commence; and the second stage (the approval of matters specific in conditions application) when the details of these outstanding matters are subsequently submitted for approval.
Pre-application Consultation	The statutory pre-application consultation with communities required for National and Major developments under Section 35B of the Town and Country Planning (Scotland) Act 1997 as amended.
Primary commitment	Primary (inherent) mitigation is an intrinsic part of the project design – it should be described in the design evolution narrative and included within the project description. For example, reducing the height of a development to reduce visual impact. Definition in accordance with 'Guide to Shaping Quality Development' (IEMA, 2015). IEMA, 2015. Guide to Shaping Quality Development available at https://www.iema.net/download-document/7018
Project	Stromar Offshore Wind Farm.

Term	Definition
Proposed Development Offshore	The offshore project elements to which the Offshore Scoping Report relates.
Proposed Development Onshore	The onshore project elements to which the Onshore Scoping Report relates.
Reactive Compensation Station	Due to the cable length a Reactive Compensation Station is required to compensate for reactive power losses and to ensure the efficiency of the power transmission. This could be on or offshore.
Scottish Ministers	The Ministers of the devolved Scottish Government, who exercise statutory functions transferred from the UK Government. The Scottish Ministers support the First Minister in leading the Scottish Government.
Scour Protection	In order to prevent seabed scour around foundation structures and cables.
Secondary commitment	<p>Secondary (foreseeable) mitigation requires further activity in order to achieve the anticipated outcome – typically, these will be described within the topic chapters of the ES, but often are secured through planning conditions and/or management plans. For example, description of certain lighting limits that will be subject to submission of a detailed lighting layout as a condition of approval. Definition in accordance with 'Guide to Shaping Quality Development' (IEMA, 2015).</p> <p>IEMA, 2015. Guide to Shaping Quality Development available at https://www.iema.net/download-document/7018</p>
Section 36	Consent under Section 36 of the Electricity Act 1989 for the construction, or extension, and operation of electricity generating stations.
Statutory Consultee	Organisations that are required to be consulted by the Planning Authority and/or Marine Directorate, and who have a duty to respond to the consultation within a set deadline. Not all consultees will be statutory consultees (see non-statutory consultees definition).
Stromar Offshore Wind Farm	The Project.
Tertiary commitment	<p>Tertiary (inexorable) mitigation will be required regardless of any EIA assessment, as it is imposed, for example, as a result of legislative requirements and/or standard sectoral practices. For example, considerate contractor practices that manage activities which have potential nuisance effects. Definition in accordance with 'Guide to Shaping Quality Development' (IEMA, 2015).</p> <p>IEMA, 2015. Guide to Shaping Quality Development available at https://www.iema.net/download-document/7018</p>
Transition Joint Bay	The area where Offshore Export Cables are connected to Onshore Export Cables at Landfall.
Wind Turbine Generator (WTG)	The wind turbines that generate electricity consisting of tubular towers and blades attached to a nacelle housing mechanical and electrical generating equipment.

Glossary of Acronyms

Acronym	Definition
AA	Appropriate Assessment
AC	Alternating Current
AEOI	Adverse Effect on Integrity
AMSC	Approval of Matters Specified in Conditions
BREP	Biodiversity Restoration and Enhancement Plan
CAA	Civil Aviation Authority
CD	Chart Datum
CEA	Cumulative Effects Assessment
CEMP	Construction Environment Management Plan
CES	Crown Estate Scotland
CIA	Cumulative Impact Assessment
CJEU	Court of Justice of the European Union
CoCP	Code of Construction Practice
DC	Direct Current
DP	Decommissioning Plan
EBI	Energy Balancing Infrastructure
ECoW	Environmental Clerk of Works
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EISA	Electrical Infrastructure Study Area
EPS	European Protected Species
EU	European Union
EUNIS	European Nature Information System
FLIDAR	Floating Light Detection and Ranging
FWPM	Freshwater Pearl Mussel

Acronym	Definition
GIS	Geographical Information System
HabMoS	Habitat Map of Scotland
HAT	Highest Astronomical Tide
HDD	Horizontal Directional Drilling
HES	Historic Environment Scotland
HRA	Habitats Regulation Appraisal
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
INNS	Invasive Non-Native Species
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee
JUV	Jack-Up Vessel
JV	Joint Venture
LAT	Lowest Astronomical Tide
LDP	Local Development Plan
LiDAR	Light Detection and Ranging
LSE	Likely Significant Effect
LVIA	Landscape, Visual and Impact Assessment
MBES	Multi Beam Echo Sounder
MCA	Maritime and Coastguard Agency
MD	Marine Directorate
MD-LOT	Marine Directorate– Licensing Operations Team
MDS	Marine Directorate Science
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MOD	Ministry of Defence

Acronym	Definition
MPA	Marine Protected Area
MSL	Mean Sea Level
NATS	National Air Traffic Services
NNR	National Nature Reserve
NPF4	National Planning Framework 4
NTM	Notice To Mariners
NVC	National Vegetation Classification
O&M	Operations and Maintenance
OFGEM	Office of Gas and Electricity Markets
OLA	Option to Lease Agreement
OnECC	Onshore Export Cable Corridor
OnRCS	Onshore Reactive Compensation Station
OnSS	Onshore Substation/Converter Station
OnTW	Onshore Transmission Works
OSA	Onshore Scoping area
OSS	Offshore Substation
OTNR	Offshore Transmission Network Review
OWF	Offshore Wind Farm
PAC	Pre-Application Consultation
PEA	Preliminary Ecological Appraisal
PoAN	Proposal of Application Notice
PPP	Planning Permission in Principle
PLGR	Pre-Lay Grapple Run
RBMPs	River Basin Management Plans
RCS	Reactive Compensation Station
RIAA	Report to Inform Appropriate Assessment

Acronym	Definition
RSPB	Royal Society for the Protection of Birds
SAC	Special Areas of Conservation
SBL	Scottish Biodiversity List
SBP	Sub Bottom Profiler
SEA	Strategic Environmental Assessment
SEPA	Scottish Environment Protection Agency
SNCB	Statutory Nature Conservation Bodies
SNH	Scottish Natural Heritage
SoS	Secretary of State
SOWF	Stromar Offshore Wind Farm Limited
SOV	Service Operations Vessel
SPA	Special Protection Area
SSEN	Scottish and Southern Electricity Networks
SSS	Side Scan Sonar
SSSI	Sites of Special Scientific Interest
TJB	Transition Joint Bay
UK	United Kingdom
UKHO	United Kingdom Hydrographic Office
UXO	Unexploded Ordnance
WTG	Wind Turbine Generator
Zol	Zone of Influence

Glossary of Units

Unit	Description
dB	Decibel
GW	Gigawatt
ha	Hectares
KHz	Kilohertz
km	Kilometres
km ²	Kilometres squared
kV	Kilovolt
kW	Kilowatt
m	Metre
m ²	Metre squared
MW	Megawatt
nm	Nautical mile

1 Introduction

1.1 Background and Purpose of this Report/Requirement for a Habitats Regulations Appraisal

- 1.1.1 The purpose of this Habitats Regulations Appraisal (HRA) Screening Report is to provide the necessary information required for the Competent Authority to determine whether the Proposed Onshore Development associated with the proposed Stromar Offshore Wind Farm (the Project), either alone or in combination with other plans or projects, could result in Likely Significant Effects (LSE) to International/European sites. This includes Ramsar sites (wetlands of 'international' importance, of which are included as a matter of government policy) and 'European' sites designated as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).
- 1.1.2 This Onshore HRA Screening Report describes potential for ecological functional and hydrological connectivity between the Proposed Onshore Development and International (Ramsar) and European (SACs and SPAs) sites considered to form a potential zone of influence of the Proposed Onshore Development, as detailed in **Section 5.1**.
- 1.1.3 Projects that have the potential to affect an International/European site must be assessed in accordance with legislation detailed within the Conservation (Natural Habitats, &c.) Regulations 1994 (the Habitats Regulations). In Scotland, this assessment is referred to as a Habitats Regulations Appraisal (HRA). The formal HRA must be undertaken by the competent authority, which in the case of the Proposed Onshore Development is Aberdeenshire Council.
- 1.1.4 This Onshore HRA Screening Report presents the required information to inform a Report to Inform Appropriate Assessment and offers provisional conclusions for consideration by the competent authority and the client to determine the need for further assessment (if required).
- 1.1.5 A separate Offshore HRA Screening Report has been submitted to the Marine Directorate on behalf of Scottish Ministers for the Offshore Wind Farm Array and associated offshore infrastructure (Orsted, 2023c).

1.2 The Developer

- 1.2.1 The Developer, Stromar Offshore Wind Farm Limited is a joint venture (JV) between Ørsted, BlueFloat Energy and Renantis. Ørsted is leading the development of the Project, supported by BlueFloat Energy and Renantis.
- 1.2.2 The Project will represent Ørsted's first commercial scale offshore wind farm in Scotland, having already gained significant English and international experience. Ørsted pioneered the first offshore wind farm in 1991 and has since solidified their reputation as a leading developer in the offshore wind market. Ørsted brings over 30 years of experience to the consortium, with a current installed global capacity of approximately 7.5 gigawatts (GW) and the ambition to achieve 30 GW of global offshore wind installed by 2030. Within the UK, Ørsted currently has approximately 6.2 GW of installed capacity, with full or part ownership in 13 offshore wind farms.
- 1.2.3 Renantis has 62 plants with an installed capacity of 1,420 MW in Italy, the UK, the US, Spain, France, Finland, Sweden, and Norway. The company also offers business and technical consulting, engineering and M&A services, with more than 5,100 MW of solar and wind energy

managed for third parties and 17 plants with community benefit schemes Renantis and BlueFloat are partnered in seven offshore wind farm projects currently under development in the UK, five of which comprise floating offshore wind farms in Scottish waters. This Scottish experience will lend itself well to the ongoing stakeholder and community engagement, due to Renantis' established presence and reputation in this market.

- 1.2.4 BlueFloat Energy is a global nimble and fast-growing offshore wind developer with a world class team across key project development functions and outstanding technical capabilities in floating offshore wind. With a circa 33 GW portfolio of both fixed-bottom and floating developments. This market-leading expertise in floating offshore wind technology will lend itself to developing the proposed Stromar Offshore Wind Farm in an environmentally conscious and sustainable way.

1.3 Project Description

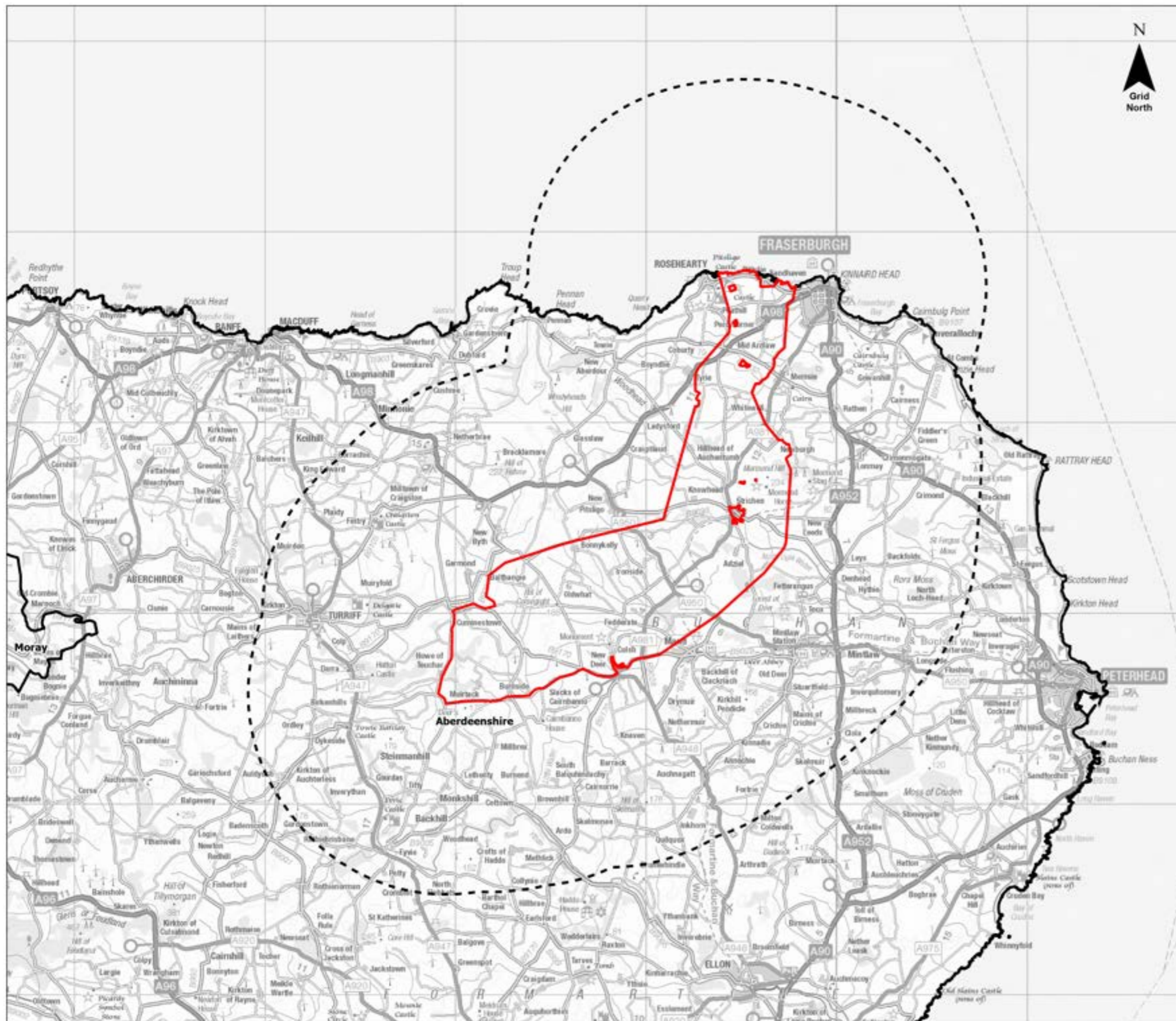
- 1.3.1 The Project will be located off the north-east coast of Scotland approximately 50 km east of Wick. In addition to the offshore wind turbines generators (WTGs), the associated offshore components of the Project include Inter-Array Cabling, Offshore Substations, and up to three Offshore Export Cables. Other potential offshore infrastructure may include an Offshore Reactive Compensation Station.
- 1.3.2 The Proposed Onshore Development will include all onshore infrastructure associated with the Project landward of Mean Low Water Springs (MLWS). As shown in **Figure 1.1**, all of the Proposed Onshore Development will be wholly located with Aberdeenshire Council's local authority area. The Proposed Onshore Development will include the construction and operation of an Onshore Substation/Converter Station (OnSS), Onshore Export Cables and Grid Connection Cables to connect into the national electricity transmission network. Associated ancillary infrastructure will include transition joint bays, link boxes and joint pits, as well as temporary access tracks, construction compounds and laydown areas. Other potential onshore infrastructure may include an Onshore Reactive Compensation Station (OnRCS), Energy Balancing Infrastructure (EBI) is also being considered, as part of the Proposed Onshore Development, for a range of supplementary green energy options, however this would not form part of the planning application for the Proposed Onshore Development and is therefore not considered further in this HRA report.

Stromar Offshore Wind Farm

Figure 1.1 Shadow HRA Screening

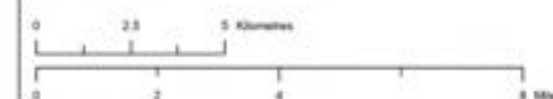
Legend

- Onshore Scoping Area
- Onshore Scoping Area 10 km Buffer
- District Borough Unitary Authority



Coordinate System: British National Grid

Scale @ A3 : 1:200,000



Rev	Description	Date
00	First Draft	19/12/2023
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Doc. Report : HRA Report
 Doc. Title : Shadow HRA Screening
 Doc. No : 404.V64554.00001.0089.0
 Doc. No of Pages : 1
 Created by : SH
 Checked by : JK
 Approved by : MF



1.3.3 The grid connection location for the Project is dependent upon the outcomes of the ongoing Offshore Transmission Network Review but it is anticipated that it will be at the proposed New Deer 2 400 kV substation near New Deer, Aberdeenshire. SSEN are progressing a separate consent application for this new substation. At this stage, the project description is indicative and a 'design envelope' has been developed to include sufficient flexibility to accommodate further design refinement. The Onshore Scoping Report (Orsted, 2023a) sets out a series of options and/or parameters for which maximum values are used to constitute a maximum design scenario for the Proposed Onshore Development. A summary of these design parameters is presented in **Table 1.1**.

Table 1.1: Onshore Infrastructure Summary

Package	Parameter	Design Envelope
Landfall	Installation methodology	Either open cut/trenched or trenchless (e.g., HDD)
	HDD	11 (3 drills per circuit plus 2 spare)
	Transition Joint Bay (TJB)	3 (1 per circuit)
	TJB dimensions (each TJB)	250 m ² (10 m x 25 m) located within a 40 m x 40 m working area
	Temporary construction compound	40,000 m ²
	Cofferdam (potential)	Trenchless installation for example via HDD or similar, may exit either in the intertidal or subtidal zone. If in the intertidal zone, it may be necessary to consider dewatering (pumping dry) and water exclusion (e.g., cofferdams). Works in the intertidal may require use of pontoons, barges or jack-up vessels, which would be maintained in place by a minimum of a 4-point mooring system, which will be set-up with the support of tugboats and anchor handling vessels, and removed once installation is complete.
Onshore cables	Number	9 (3 per circuit)
	Trenches	3 (1 per circuit)
	Trench width	5 m per trench and 10 m gap between trenches
	Installation	Direct lay in trenches, or pulled through pre-installed ducting
	Permanent corridor (except in case of obstructions e.g. at HDD crossings)	45 m
	Temporary construction corridor (except in case of obstructions e.g., at HDD crossings)	105 m
	Number of primary logistics compounds	1 (140 m x 140 m)

Package	Parameter	Design Envelope
	Number of secondary logistics compounds	5 (90 m x 90 m)
Onshore substation/converter station	Area of site	90,000 m ² (indicatively 60,000 m ² permanent footprint plus 30,000 m ² temporary area for construction)
	Number of main buildings	1-5
	Height of main building	30 m
	Electrical equipment height (if external to substation/converter station height)	35 m (lightning protection and power mast)
Reactive Compensation Station	Area of site	30,000 m ² (indicatively 15,000 m ² permanent footprint plus 15,000 m ² temporary area for construction)
	Single building dimensions (combining three circuits)	120 m x 75 m
	Number of buildings (if multiple buildings)	4 (one per circuit plus a GIS and Control building)
	Single building dimensions (if multiple buildings)	60 m x 40 m
	Building and fire walls height	12.5 m
	Lightning protection height from ground level	17.5 m

1.3.4 A detailed construction programme will be developed as design and procurement activities progress. It is anticipated that the onshore construction will take place over four and a half years, with the OnSS taking approximately three years and seven months, OnECC two years and works at the landfall to last approximately six months. Activities associated with these components of the Proposed Onshore Development may not be continuous, and they may be divided into various phases and/or seasons. However, they are expected to take place within the four and a half years.

1.4 Relevant Legislation and Policy

Legislative Context

Habitats Directive and Habitats Regulations

1.4.1 The Habitats Directive (92/43/EEC) on the Conservation of Natural Habitats and of Wild Fauna and Flora (the 'Habitats Directive') protects habitats and non-avian animal species of European conservation importance. The Habitats Directive combines with the Council Directive (2009/147/EC) on the conservation of wild birds (the 'Birds Directive'), which protects rare, vulnerable and migratory bird species, to create the 'Natura 2000' network of European protected sites. European sites designated under the Habitats Directive are called Special Areas of Conservation (SACs), and those designated under the Birds Directive are Special Protection Areas (SPAs).

1.4.2 In Scotland these directives are implemented through the Conservation (Natural Habitats &c.) Regulations 1994 (the 'Habitats Regulations'), which cover terrestrial areas and territorial waters out to 12 nm.

1.4.3 Additionally, the Conservation on Wetlands of International Importance especially as Waterfowl Habitat 1971 (the 'Ramsar Convention') designates wetland sites for protection ('Ramsar sites'). The Scottish Government reiterated its policy on the protection of Ramsar sites in 2019¹, specifically stating that 'where Ramsar interests coincide with Natura qualifying interests protected under an SPA or an SAC, as the case may be, the interests are thereby given the same level of (legal) protection as Natura sites' and 'where Ramsar interests are not the same as Natura qualifying interests but instead match Sites of Special Scientific Interest (SSSI) features, these receive protection under the SSSI regime'.

Amendments Post EU Exit

1.4.4 Post-Brexit, The Habitats Regulations, remain in force, with the same protections retained; however, UK sites are no longer part of the EU's Natura 2000 network, instead forming a national network of protected sites. Key terminology is primarily unchanged, with the terms 'European site', 'Special Area of Conservation (SAC)' and 'Special Protection Area (SPA)' all being retained².

1.4.5 In cases where no adverse effect on integrity (AEOI) can be proven, the competent authority would previously have been required to seek the opinion of the European Commission on whether the plan or project should be carried out for imperative reasons of overriding public interest (IROPI). Since exiting the EU, this now falls under the remit of the Scottish Ministers, who must seek the opinion of the Secretary of State, the Joint Nature Conservation Committee (JNCC), and any other person the Scottish Ministers consider appropriate.

Relevant Case Law

1.4.6 Although the UK is no longer part of the EU, a series of prior rulings of the Court of Justice of the European Union (CJEU) remain relevant for the purposes of HRA. Case law of relevance is described in **Table 1.2** and has been considered throughout this HRA screening exercise.

Table 1.2: Case Law of Relevance to the HRA of the Proposed Onshore Development

Case Law	Ruling
People Over Wind and Sweetman v Coillte Teoranta (C-323/17)	The ruling of the CJEU requires that mitigation measures intended to avoid or reduce harmful effects of a project on a European or International site should not be taken into account at when assessing Likely Significant Effects (LSE) at screening stage.

¹<https://www.gov.scot/publications/implementation-of-scottish-government-policy-on-protecting-ramsar-sites/>

²<https://www.gov.scot/publications/eu-exit-habitats-regulations-scotland-2/documents/>

Case Law	Ruling
Waddenzee (C-127/02)	<p>This ruling provided clarity on the interpretation of a 'likely significant effect', detailing that a project should be subject to appropriate assessment <i>"if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects"</i>. Therefore, 'likely', in this context, should not simply be interpreted as 'probable' or 'more likely than not', but rather whether a significant effect can objectively be ruled out.</p> <p><i>"Where such a plan or project has an effect on a site but is unlikely to undermine the conservation objectives, it cannot be considered likely to have a significant effect on the site concerned"</i> (Para 47).</p>
Sweetman v An Bord Pleanála (C-258/11)	<p>Request for a preliminary ruling from the Supreme Court (Ireland). Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that a plan or project not directly connected with or necessary to the management of a site will adversely affect the integrity of that site if it is liable to prevent the lasting preservation of the constitutive characteristics of the site that are connected to the presence of a priority natural habitat whose conservation was the objective justifying the designation of the site in the list of sites of Community importance, in accordance with the directive. The precautionary principle should be applied for the purposes of that appraisal.</p>
Holohan and Others v An Bord Pleanála (C-461/17)	<ol style="list-style-type: none"> 1. Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that an 'appropriate assessment' must, on the one hand, catalogue the entirety of habitat types and species for which a site is protected, and, on the other, identify and examine both the implications of the proposed project for the species present on that site, and for which that site has not been listed, and the implications for habitat types and species to be found outside the boundaries of that site, provided that those implications are liable to affect the conservation objectives of the site. 2. Article 6(3) of Directive 92/43 must be interpreted as meaning that the competent authority is permitted to grant to a plan or project consent which leaves the developer free to determine subsequently certain parameters relating to the construction phase, such as the location of the construction compound and haul routes, only if that authority is certain that the development consent granted establishes conditions that are strict enough to guarantee that those parameters will not adversely affect the integrity of the site. 3. Article 6(3) of Directive 92/43 must be interpreted as meaning that, where the competent authority rejects the findings in a scientific expert opinion recommending that additional information be obtained, the 'appropriate assessment' must include an explicit and detailed statement of reasons capable of dispelling all reasonable scientific doubt concerning the effects of the work envisaged on the site concerned. 4. Article 5(1) and (3) of, and Annex IV to, Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment, must be interpreted as meaning that the developer is obliged to supply information that expressly addresses the significant effects of its project on all species identified in the statement that is supplied pursuant to those provisions. 5. Article 5(3)(d) of Directive 2011/92 must be interpreted as meaning that the developer must supply information in relation to the environmental impact of both the chosen option and of all the main alternatives studied by the developer, together with the reasons for his choice, taking into account at least the environmental effects, even if such an alternative was rejected at an early stage.

Case Law	Ruling
T.C. Briels and Others v Minister van Infrastructuur en Milieu (C-521/12).	Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that a plan or project not directly connected with or necessary to the management of a site of Community importance, which has negative implications for a type of natural habitat present thereon and which provides for the creation of an area of equal or greater size of the same natural habitat type within the same site, has an effect on the integrity of that site. Such measures can be categorised as 'compensatory measures' within the meaning of Article 6(4) only if the conditions laid down therein are satisfied.

Relevant Policy

1.4.7 Planning policy of relevance to the assessment of effects of onshore biodiversity and nature conservation is detailed below.

National Planning Framework 4

1.4.8 The National Planning Framework 4 (NPF4) was adopted by Scottish Ministers on 13 February 2023. In order to accord with the biodiversity provisions of NPF4, development proposals should demonstrate that they contribute to the enhancement of biodiversity. Of relevance to the Proposed Onshore Development is Policy 3: Biodiversity parts (a), (b) and, particularly within the context of this Onshore HRA Screening Report, (d), which state:

“3a) Development proposals will contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats and building and strengthening nature networks and the connections between them. Proposals should also integrate nature-based solutions, where possible.

b) Development proposals for national or major development, or for development that requires an Environmental Impact Assessment will only be supported where it can be demonstrated that the proposal will conserve, restore and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention. This will include future management. To inform this, best practice assessment methods should be used. Proposals within these categories will demonstrate how they have met all of the following criteria:

- i. the proposal is based on an understanding of the existing characteristics of the site and its local, regional and national ecological context prior to development, including the presence of any irreplaceable habitats;*
- ii. wherever feasible, nature-based solutions have been integrated and made best use of;*
- iii. an assessment of potential negative effects which should be fully mitigated in line with the mitigation hierarchy prior to identifying enhancements;*
- iv. significant biodiversity enhancements are provided, in addition to any proposed mitigation. This should include nature networks, linking to and strengthening habitat connectivity within and beyond the development, secured within a reasonable timescale and with reasonable certainty. Management arrangements for their long-term retention and monitoring should be included, wherever appropriate; and*
- v. local community benefits of the biodiversity and/or nature networks have been considered...*

d) Any potential adverse impacts, including cumulative impacts, of development proposals on biodiversity, nature networks and the natural environment will be minimised through careful planning and design. This will take into account the need to reverse biodiversity loss, safeguard the ecosystem services that the natural environment provides, and build resilience by enhancing nature networks and maximising the potential for restoration”.

Other Policy

- 1.4.9 The Onshore Scoping Report (Orsted, 2023a) provides a list of related planning policy; including:
- Scottish Biodiversity List (SBL);
 - Aberdeenshire Local Development Plan;
 - Aberdeenshire Council Natural Heritage Strategy 2019 – 2022; and
 - North East Scotland Biodiversity Partnership.
- 1.4.10 Their relevance will be considered at future steps of the HRA process (i.e., from ‘Step’ 4, the first step of appropriate assessment – described in 2.3, where required).

1.5 Evidence of Technical Competence and Experience

Task Lead

- 1.5.1 The lead ecologist for the onshore HRA is Nicola Tyrrell BSc MSc CEnv MCIEEM, a Technical Director for SLR’s Ecology and Biodiversity team, who has steered and reviewed each version of the HRA Screening. Nicola has 16 years ecological consultancy experience and has conducted complex HRA assessments for small and large scale projects for over 11 years.

Non-avian

- 1.5.2 The non-avian assessment has been led by Hannah Rowding BSc MSc ACIEEM, a Senior Ecologist at SLR who has seven years ecological consultancy experience in habitats, protected, notable and invasive species survey and management, biodiversity enhancement, restoration and compensation, and Ecological Impacts Assessment.
- 1.5.3 Hannah commenced the non-avian HRA with the draft being complete by Peter Wigglesworth MSc BSc ACIEEM. Peter is an SLR Graduate Ecologist and Natural Capital Consultant, who leads and assists with various ecological surveys and assessments, with a focus on bird and bat ecology and increasing support to HRA assessments.

Ornithology

- 1.5.4 The ornithology assessment has been led by Michael Austin MCIEEM, an Associate Ecologist with SLR since 2015. Michael has led and input to HRA reports over the last ten years, as well as acting as a consultant Ecologist and Ornithologist since 2005. Prior to that, Michael performed roles in conservation with RSPB and local wildlife trusts.

2 HRA Methodology

2.1 Relevant Guidance

2.1.1 The methodology applied in this Screening Report has been informed with reference to key HRA guidance, including:

- Scottish Government 'Habitats Regulations Appraisal (HRA)'³;
- NatureScot 'Habitats Regulations Appraisal'⁴;
- NatureScot 'Guidance on How to consider plans and projects affecting Special Areas of Conservation (SACs) and Special Areas of Protection (SPAs)' (2022); and
- Scottish Natural Heritage (2015) 'Habitats Regulations Appraisal of Plans: Guidance for Plan-making Bodies in Scotland'.

2.2 Consultation

2.2.1 Early consultation with key stakeholders has been made as defined in **Table 2.1**. Workshops have been solely online, on a needs basis to agree methodologies for surveys and assessments with key stakeholders as well as on a desirable basis to engage with key stakeholders regarding specific issues.

³ <https://www.gov.scot/policies/environmental-assessment/habitats-regulations-appraisal-hra/>

⁴ <https://www.nature.scot/professional-advice/planning-and-development/environmental-assessment/habitats-regulations-appraisal-hra>

Table 2.1: Summary of Screening Consultation

Topic	Date	Stakeholders Present (unless noted)	Key Comments	Status
Proposed Onshore Development Introduction	09.03.2023	RSPB	Meeting to introduce RSPB to the Proposed Onshore Development. This includes details of the Proposed Onshore Development and an indicative programme for environmental surveys and the consent application for the Proposed Onshore Development. An update was also provided on the 2023/24 wintering bird surveys that had been undertaken at potential landfall locations.	Consultation ongoing
Avian survey methodologies	09.05.2023	RSPB	Methodology for 2022/23 wintering birds surveys at landfall and 2023 breeding bird surveys at landfall sent to RSPB for comment.	Positive feedback in meeting dialogue. Consultation ongoing for wintering bird survey methodology proposed.
Ecological survey methodologies	26.05.2023	NatureScot/Aberdeenshire Council Ecology	Survey methodology for proposed 2023 non-avian ecology surveys issued to NatureScot and Aberdeenshire Council Ecology for comments.	Methodology agreed via email and meeting correspondence
Proposed Onshore Development Update	23.06.2023	NatureScot	Meeting to update NatureScot on the proposals, in particular to update on the ongoing route planning and site selection work being undertaken for the Onshore Export Cable Corridor and Onshore Substation/Converter Station location. Proposed methodology for undertaking 2023 habitat surveys initially discussed.	Methodology and approach agreed in subsequent emails and meetings.
Proposed Onshore Development Introduction	25.07.2023	RSPB	Further Proposed Onshore Development update meeting to introduce the Proposed Onshore Development to new RSPB case officers. In addition to the previous introductory meeting, further information also presented on ongoing route planning and site selection work.	Project Area Officer met, and local intelligence gathered

Topic	Date	Stakeholders Present (unless noted)	Key Comments	Status
Ecological survey methodologies	01.08.23	NatureScot	<p>NatureScot are in the process of updating guidance on habitat surveys for development. Current advise is that habitat surveys should include:</p> <ul style="list-style-type: none"> • Phase 1 habitat survey; • National Vegetation Classification (NVC) survey of habitats listed on Annex 1 of the EC Habitats Directive and UK Biodiversity Action Plan (Priority Habitat) accompanied by supporting vegetation and quadrat information; and • Records of any rare or scarce plant species. <p>NatureScot have adopted the European Nature Information System (EUNIS) as the standard habitat classification system for terrestrial habitat data and mapping. Current advice is that all habitat surveys should also include EUNIS classifications.</p>	Agreed
Ecological survey methodologies	15.08.23	NatureScot	Confirmation for use of 2012 EUNIS codes when converting UKHab to EUNIS	Agreed
Offshore HRA Screening Methodology and Conclusions	16.11.23	MD-LOT and NatureScot	A pre-Scoping consultation workshop was held with MD-LOT, NatureScot and technical topic experts in November 2023. This workshop provided an opportunity to gain feedback on the proposed offshore HRA Screening methodologies and conclusions. Please refer to Section 3 of the Offshore Screening Report (Orsted, 2023c) for further information.	Awaiting formal written feedback from MD-LOT and NatureScot.

2.3 The Staged Process for HRA

2.3.1 **Figure 2.1**, extracted from NatureScot guidance (2022), summarises the steps to consider when determining whether a plan or project could affect a European site. The requirements of the Habitats Regulations has been broken down into nine key 'steps'. Please note that the NatureScot document refers to 'Stages' yet this is often confused with other devolved HRA methods (e.g., Stages 1 and 2 etc in England); therefore, the term 'Steps' is adopted for clarity. To explain, Screening is often referred to as 'Stage 1' and Appropriate Assessment as 'Stage 2'; whereas the NatureScot guidance 'Steps 1-3' would relate to Screening and 'Steps 4-5' would relate to Appropriate Assessment.

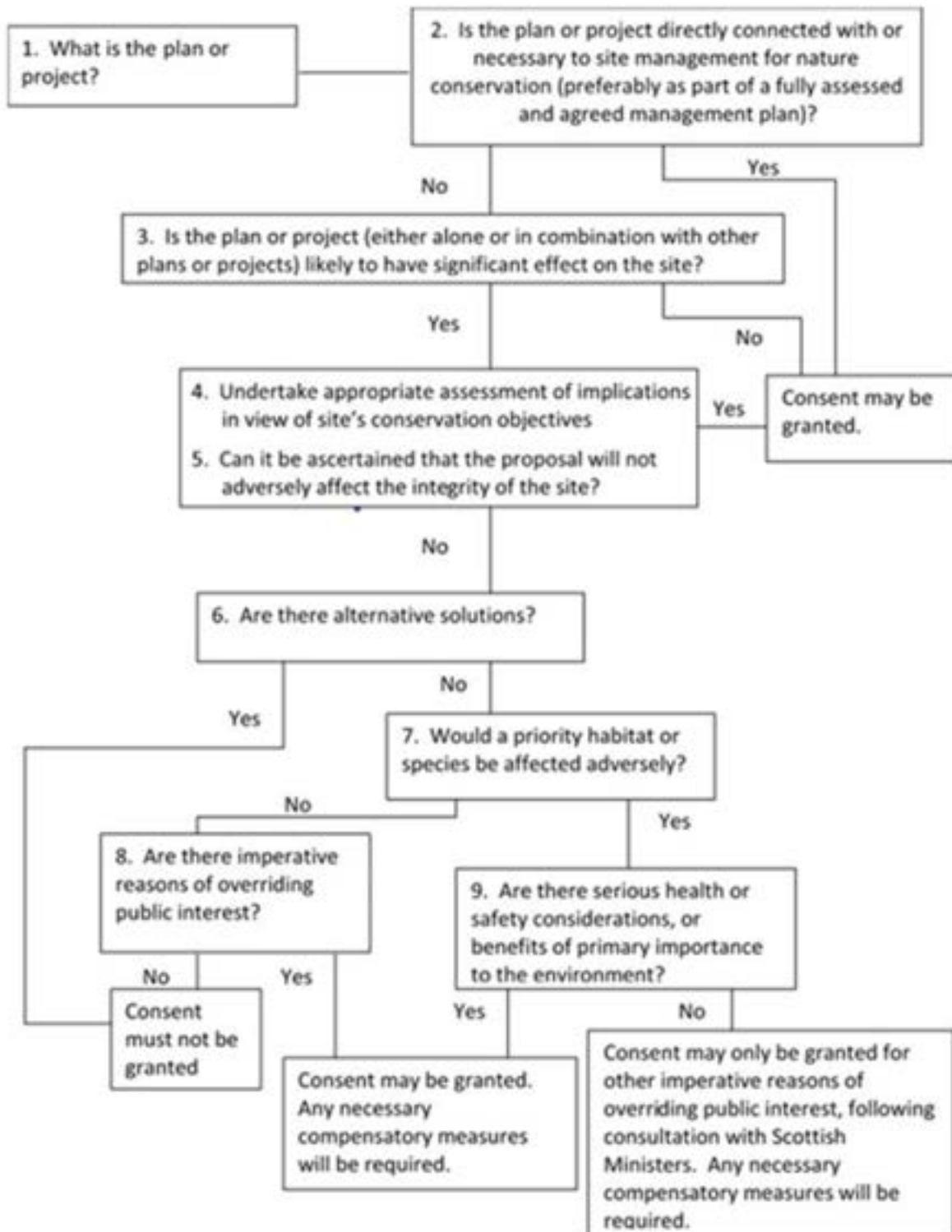


Figure 2.1: Steps Involved when Considering Plans or Projects That Could Affect European Sites

Screening - 'Steps 1-3'

- 2.3.2 The purpose of the screening assessment is to determine whether a plan or project requires more detailed assessment. Screening will be addressed in this Report.
- 2.3.3 There are three steps:
- Step 1: Considers whether the plan or project is needed for the management of a European site for the purpose of maintaining or restoring its conservation interest. Any such plans or projects can usually be screened out of further assessment.
 - Step 2: Provides a full project description.
 - Step 3: Considers whether the plan or project, without specific mitigation measures, would be likely to have a likely significant effect (LSE) on any European Site. This requires consideration of the characteristics of the site, zone of influence for defined features and potential pathways of effect for the project on its own and in combination with other plans or projects.
- 2.3.4 A project can only be screened out of further assessment if it is certain (beyond reasonable scientific doubt) that there would be no LSE on any International/European site without mitigation designed specifically to address potential effects on the qualifying interest of such sites. The process is also used to determine which International and/or European sites should be included in the later stages of the assessment.
- 2.3.5 A precautionary approach has been adopted in screening to ensure that all potential for LSE is identified. The implication of this approach is that protected sites and features are screened in unless a clear conclusion of no LSE can be made. In some circumstances, effects can be considered *de minimis*. A *de minimis* change is one that has no appreciable effect on the protected site; in other words, so negligible, restricted or remote from the protected site that the effect would not undermine the conservation objectives for the site either alone or in combination (Scottish Natural Heritage, 2015).
- 2.3.6 The aim of screening is to identify which protected sites and features to take forward into 'Step 4': Appropriate Assessment. The methodology is set out here for a structured and systematic approach to screening. Potential connectivity is first established through the use of a screening parameter, which is specific to the feature and linked to the relevant pressure, followed by consideration of the potential for LSE to occur.
- 2.3.7 For assessment purposes, the terms pathway, pressure, impact and effect are used regularly and are key to how the spatial criteria applied in screening have been defined. An effect is the result of an impact(s) to features, which can occur when a pressure acts via (impact) pathways. Impacts may be quantified (or a view taken on magnitude) whereas an effect is simply the consequence of an impact. Possible pressures arising from the Proposed Onshore Development during all phases have been analysed and potential impact pathways identified. For each pathway-pressure combination, a spatial criterion is defined to establish potential connectivity. Due to the varying ecology of different feature groups, different spatial criteria are applied to different features. These spatial parameters relate to the range (spatial extent) of impacts and the ranging behaviour of mobile species.

- 2.3.8 As each feature group will be sensitive to different pressures, the list of pressures will vary between feature group.
- 2.3.9 Where the screening for the Proposed Onshore Development alone has identified a potential for LSE, then it will be assumed that there is potential for the Proposed Onshore Development alone to contribute to an in-combination LSE. However, it should be noted that given the precautionary nature of screening, it is possible for some sites/features screened in for potential LSE for the Proposed Onshore Development alone to be found to have no pathway/connectivity in assessment and therefore no potential for the Proposed Onshore Development to contribute to any in-combination effect. In addition, should the Proposed Onshore Development alone be found to have a *de minimis* level of effect, the potential to contribute to an in-combination impact will be considered on a *de minimis* basis. Finally, for an in-combination effect to result to a specific protected site and feature, there needs to be a plan or project acting in-combination.
- 2.3.10 The in-combination assessment will therefore assess the potential for the Proposed Onshore Development to contribute to an in-combination effect where:
- The potential impact from the Proposed Onshore Development is greater than zero (noting that a *de minimis* effect should be considered trivial and inconsequential); and
 - There is a plan or project to act in-combination.
- 2.3.11 As is standard for in-combination assessments for onshore wind, a tiered approach to plans and projects in-combination will be applied, to take account of plan and project certainty (for example a project in early stages of planning compared to a project with consent) and the level of detail available (for example a project at Scoping would not have quantitative numbers to include in-combination). How plans and projects are assigned to tiers will be defined on a feature group basis. Where an impact is temporally limited (e.g., underwater noise) this will also be a consideration in the assessment.
- ‘Steps 4-5’: Appropriate Assessment**
- 2.3.12 Appropriate Assessment (AA) is more detailed. This essentially repeats the second test of the screening assessment but in more detail and considering mitigation measures before reaching a conclusion. At this stage, the test is whether the project or plan will have an adverse effect on the integrity of any European site. This must be done in the light of the conservation objectives for the qualifying interest features. Any effect which is found to undermine the conservation objectives is considered an adverse effect on the integrity of the site, and vice versa.
- 2.3.13 AA will not be addressed in this Report other than to advise whether this assessment will be a requirement.
- ‘Steps 6-9’: In Circumstances of Potential Adverse Effects**
- 2.3.14 The process of the assessment required by regulation 48 is described in steps 1-5 and is now widely known as the ‘Habitats Regulation Appraisal’. Steps 6-9 are only considered in circumstances where it cannot be ascertained that the plan or project will not adversely affect the integrity of a European site.
- 2.3.15 This will not be addressed in this Report.

3 Screening Step 1: What is the Project

3.1 The Proposed Onshore Development Requirements Under Assessment

3.1.1 The Project is an offshore wind farm being progressed through the ScotWind leasing round, for which requires development of both offshore wind energy generation infrastructure, and offshore and onshore energy transmission infrastructure for transporting energy generated to the National Grid.

3.1.2 This assessment addresses the Proposed Onshore Development from MLWS and inland for the 'project alone' with 'whole project' being addressed within the in-combination assessment of the Proposed Offshore Development

3.2 Other Projects and Plans with Potential for In Combination Effects

3.2.1 Regulation 63 of the Habitat Regulations includes a requirement for the Competent Authority to make the Appropriate Assessment along and in-combination with other plans or projects, where these are not directly connected with or necessary to the management of the site.

3.2.2 In-combination impacts of the Proposed Onshore Development will be assessed to identify where there could be an accumulation of impacts of a sensitive feature, which could result in the need for further mitigation (for instance a large number of minor effects may coincide to result in an adverse effect of greater severity/harm overall). These impacts consider other proposed developments within the context of the site and any other reasonably foreseeable proposals in the vicinity including:

- Under construction;
- Permitted application(s), but not yet implemented;
- Submitted application(s) not yet determined;
- Projects identified in the relevant Local Development Plan (in this case the Aberdeenshire Local Development Plan 2023), recognising that much information on any relevant proposals will be limited; and
- Projects in EIA Scoping, again recognising that much information on proposals will be limited.

3.2.3 The types of plans and projects that will be considered will include (but will not be limited to) the following:

- Relevant renewable energy developments;
- Relevant electricity network and grid reinforcement developments;
- Relevant onshore pipeline developments; and
- Other relevant strategic and national development projects.

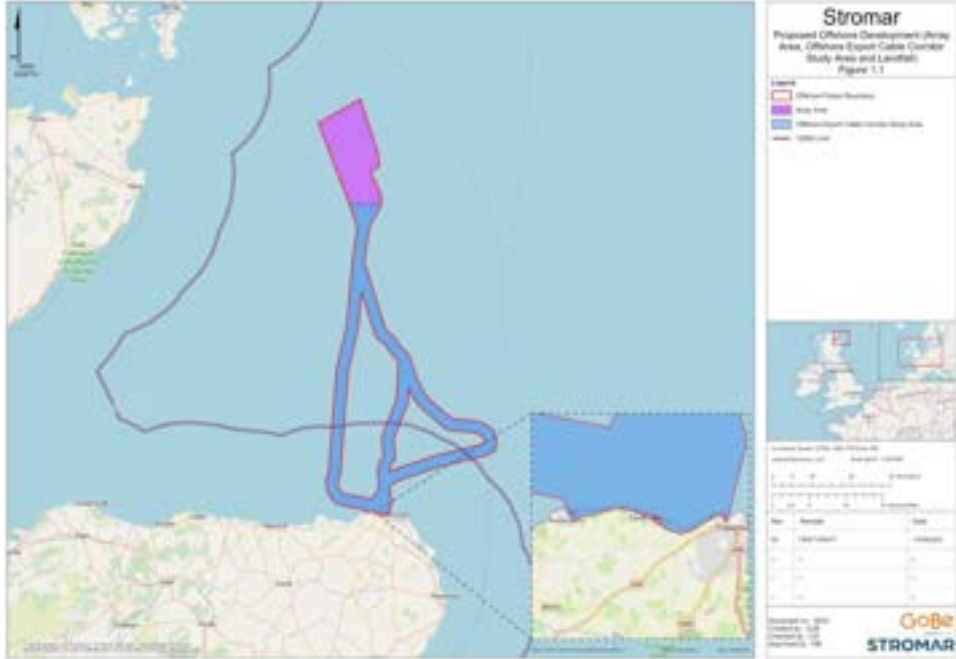
3.2.4 The potential for an in-combination effect will also depend on factors such as timing of works and specifics of works – as not all plans and projects will result in an in-combination effect. Potential plans and projects to include in-combination will therefore be identified for each site screened in


alone and in the context of the potential for both the Proposed Onshore Development and that plan or project(s) to result in an in-combination effect.


3.2.5 A long list of all potential plans and projects considered relevant to the Proposed Onshore Development will be developed. At the time of screening, this long list is not available. However, the other plans or projects which have been taken into account within this Screening Report are shown in **Table 3.1**, as well as:

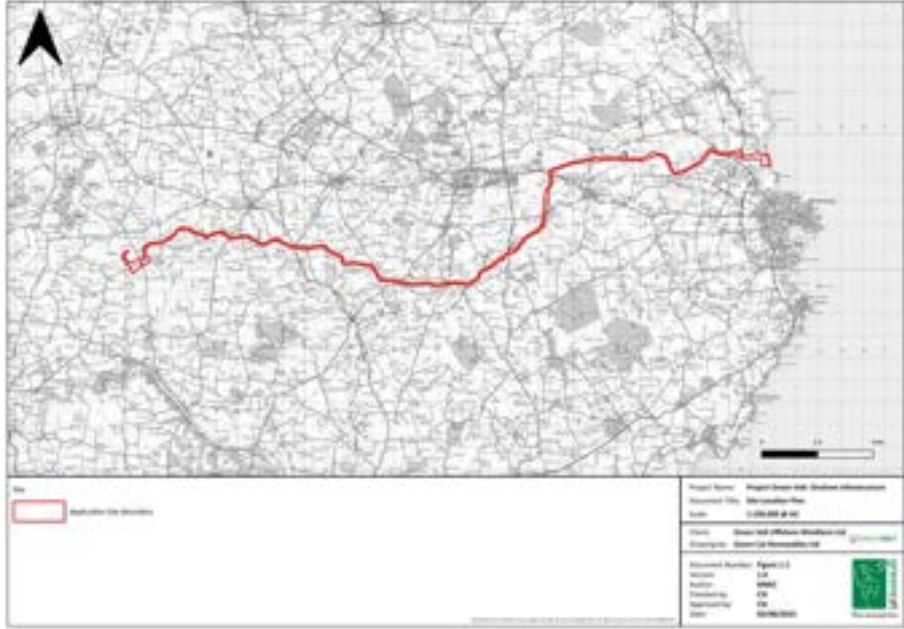
- Relevant Electricity Network and Grid Reinforcement Developments
 - **Beauly – Blackhillock – New Deer – Peterhead 400 kV Project.** A proposed new 400 kV overhead line and new additional substations between new Beauly and Peterhead. These new substations will include a new 400 kV substation, New Deer 2, into which the Proposed Onshore Development and Caledonia Offshore Wind Farm will connect. It is understood from pre-application consultation materials that construction is anticipated to commence in Autumn 2026 and continue until Spring 2030.
- Relevant Onshore Pipeline Developments
 - None identified at this stage.
- Other Relevant Strategic and National Development Projects
 - None identified at this stage.

Table 3.1: Other offshore wind farm projects

Relevant Renewable Energy Projects	Location
<p>Stromar Offshore Wind Farm</p> <p>This relates to the associated offshore components of the Project including the offshore wind turbines generators (WTGs), Inter-Array Cabling, Offshore Substations, and up to three Offshore Export Cables. Other potential infrastructure may include an Offshore Reactive Compensation Station. The Offshore Array will be located off the north-east coast of Scotland approximately 50 km east of Wick with a surface area of approximately 256 km². The Offshore Export Cables will be up to 26 km long and will connect into a landfall location to the west of Fraserburgh (i.e., they will share the same landfall location with the Proposed Onshore Development). The Offshore Project Boundary within which the Proposed Offshore Development will be located is shown in Figure 3.1.</p> <p>The Onshore HRA will consider any impacts associated with the offshore elements of the Project which could cause LSE in-combination effects with the onshore elements.</p>	 <p>Figure 3.1: Stromar Offshore Wind Farm</p>

Relevant Renewable Energy Projects	Location
<p>Caledonia Offshore Wind Farm</p> <p>The April 2023 Proposal of Application Notice identifies that it is expected that the Caledonia Offshore Wind Farm landfall will be made on the stretch of coast between Easter Whyntie and Banff, with the onshore export cable then expected to extending south-eastwards for approximately 33 km inland (see Figure 3.2). The project will then connect into the New Deer 2 substation, with a search area for a new onshore substation of 10 km around the existing New Deer substation identified. The December 2022 Scoping Report identifies that it is expected that construction of the onshore transmission infrastructure will take approximately 2.5 years, with no intended start date for construction identified.</p>	 <p>The map shows the coastline from Easter Whyntie to Banff. A red line indicates the onshore export cable route extending inland from the coast. A yellow circle highlights the search area for a new onshore substation around the existing New Deer substation. The map includes a grid, a legend, and a scale bar. A logo for 'CALEDONIA OW' is visible in the bottom right corner of the map area.</p> <p>Figure 3.2: Caledonia Offshore Wind Farm</p>

Relevant Renewable Energy Projects	Location
<p>Marram Offshore Wind Farm</p> <p>The January 2023 Scoping Report for Marram Offshore Wind Farm identifies that it is expected that landfall will be made on the stretch of coast between Sandhaven on the north coast (west of Fraserburgh) to Sandford Bay (south of Peterhead) (see Figure 3.3). A search area for the onshore substation consisting of a 5 km radius centred on a grid connection point at Peterhead is identified. A 3 km radius has been applied to a grid connection at the SSEN substation at New Deer (if required). The Scoping Report identifies the overall duration of the offshore infrastructure is anticipated to be up to eight years, with construction of the onshore infrastructure expected to take in the region of two to three years. The data for the start of construction is unknown - it is identified that the start of construction will be subject to final grid connection date, supply chain discussions and further site surveys.</p>	 <p>The map displays the offshore wind farm area in the North Sea, bounded by a red line. A dashed red circle indicates a 5 km search area for an onshore substation centered on Peterhead. A smaller dashed red circle indicates a 3 km search area for a grid connection at New Deer. The map includes a legend, a scale bar, and an inset map of Scotland showing the project's location. Logos for WSP and Microsoft are visible in the bottom right corner of the map frame.</p> <p>Figure 3.3: Marram Offshore Wind Farm</p>

Relevant Renewable Energy Projects	Location
<p>Green Volt Offshore Wind Farm</p> <p>Planning application (ref APP/2023/1454) for the onshore transmission infrastructure for the Greenvolt Offshore Wind Farm identifies a proposed landfall point approximately 1.25 km north of Peterhead, with a 35 km onshore export cable route running west to a proposed new onshore substation located approximately 450 m south-east of the SSEN New Deer substation (see Figure 3.4). The EIA Report identifies that it is anticipated that construction of the project will commence in Spring 2025, with completion expected by Autumn 2027.</p>	 <p>Figure 3.4: Green Volt Offshore Wind Farm</p>
<p>Other Offshore Wind Farm Projects</p> <p>There are a number of other wind farm projects that are expected to make landfall in Aberdeenshire, including Cenos, Ossian, Marram, Salamander, Morven and Muir Mhor. However, it is expected that these projects will utilise different landfalls and grid connection points, and as such that there is limited potential for in-combination effects with the Proposed Onshore Development. The potential for in-combination effects with these projects is not therefore considered further in this Screening Report, however these projects will be kept under review as they progress towards scoping and application stages.</p>	

4 Screening Step 2: Management of the Site

- 4.1.1 The Proposed Onshore Development is not directly connected with or necessary to the management, for the purposes of maintaining or restoring the conservation interest, of any European Site of the National Network. The Proposed Onshore Development cannot therefore be screened out of further assessment and is expected to progress to Step 3.

5 Step 3: Assessment of Likely Significant Effects

5.1 Characteristics of the Site, Zone of Influence and Potential Pathways of Effect – Non-avian

5.1.1 The following summarises the main sources of information that has been drawn on to inform the Screening Report. This includes existing data sources that are in the public domain together with completed, ongoing and planned site-specific surveys. Further information is available in the Stromar Onshore Scoping Report (Orsted, 2023a), submitted alongside this Report.

Development Site Baseline

Benthic Subtidal and Intertidal Ecology

Existing Data Sources

5.1.2 Key existing data sources include those associated with relevant designated sites. That information is available through NatureScot and will be drawn on as required for the subsequent assessment should an Annex I habitat feature(s) be screened in.

5.1.3 The closest SAC with Annex I features to the Project is Moray Firth SAC, located approximately 69.5 km at its nearest point from the Proposed Development. The following Annex I habitat is a primary reason for selection of this site:

- Subtidal sandbanks.

Site Specific Surveys

5.1.4 No site specific surveys are needed to inform benthic subtidal and intertidal ecology for the HRA. For further information regarding geophysical and benthic ecology surveys to inform the EIA please refer to the Offshore Scoping Report (Orsted, 2023b).

Terrestrial and Freshwater Habitats

Existing Data Sources

5.1.5 Section 8.4. of the Onshore Scoping Report (Orsted, 2023a) provides a brief account of the known-to-date ecological baseline of the Proposed Onshore Development based on aerial imagery within a wider area, defined as the 'Onshore Scoping Area' (OSA).

5.1.6 Data is currently based on Habitat Map of Scotland (HabMoS) European Union Nature Information System (EUNIS) Land Cover map layer⁵. Data indicates that habitats within the Onshore Scoping Area are predominantly agricultural and managed grassland, with pockets of woodland and inland surface water throughout. There are also discrete parcels of heathland and mire habitat known to be present. Along the coastline, the landscape comprises a mixture of urban development, coastal, and marine habitat.

⁵ Information relating to the Habitat Map of Scotland is available at: <https://www.nature.scot/landscapes-and-habitats/habitat-map-scotland>. Note that following consultation with NatureScot, it has been agreed that the 2012 EUNIS habitat coding system will be applied to the Proposed Onshore Development.

Site Specific Surveys

- 5.1.7 The first stage of onshore non-avian ecological walkover surveys commenced in September 2023 with the results, once data has been collated and reviewed, will inform future assessments. A Preliminary Ecological Appraisal (PEA) survey will be conducted in order to characterise broad habitat types present and assess the condition of each habitat parcel mapped within a defined survey area. An assessment of the suitability of broad habitat types to support protected or otherwise notable species will be also carried out simultaneously. The results of this survey work will inform the requirement for further targeted surveys, of which are due to commence in 2024 (including surveys for targeted protected and otherwise notable species and National Vegetation Classification (NVC) survey in areas for which Annex I habitats, or habitats of principal importance for biodiversity conservation, are identified through the PEA).

Protected, Notable and Legally Controlled Terrestrial/Freshwater Species

Existing Data Sources

- 5.1.8 An account of protected, notable and legally controlled species is provided in Section 8.4 of the Onshore Scoping Report (Orsted, 2023a). The direct relevance of species to this Report will not be discussed further in this Screening assessment, as the focus will be on habitats for non-avian ecology at this Screening stage, with the exception of migratory fish/freshwater pearl mussel and marine mammals.

Site Specific Surveys

- 5.1.9 This Report will inform the need for any supplementary surveys in 2024, depending on the outcome of the Screening assessment.

Migratory Fish and Freshwater Pearl Mussel

Existing Data Sources

- 5.1.10 Section 4.5 of the Offshore Screening Report (Orsted, 2023c) details key existing data sources associated with relevant designated sites with migratory fish and freshwater pearl mussel features of relevance to the Stromar Onshore HRA Screening.
- 5.1.11 Annex I migratory fish include a number of species that occur in UK waters, with designated sites focused on the estuarine and riverine habitats. The migratory fish receptor group includes the freshwater pearl mussel (FWPM) (*Margaritifera margaritifera*) as the life cycle of the species is linked to salmonids. The migratory fish included in screening are sea lamprey (*Petromyzon marinus*), river lamprey (*Lampetra fluviatilis*) and Atlantic salmon (*Salmo salar*). These species have been considered initially for potential connectivity based on a fixed 200 km distance from the Proposed Onshore Development, to take account of the mobile nature of the species and the Zol of the Project.
- 5.1.12 The subsequent determination of potential for LSE takes account of recent advice provided on projects in a similar location and as confirmed for the Project by NatureScot during the Scoping Workshop (16 November 2023). Specifically, that the lack of data on migratory fish at sea mean it is not possible to identify potential connectivity between fish at sea and specific SACs. Therefore, the potential for LSE is made with respect to a precautionary maximum range of 50 km from the Proposed Onshore Development to the SAC, to exceed the expected Zol of the Project that may have direct connectivity to a relevant SAC and the feature(s) within. A single site

(the River Spey SAC) is near yet beyond that range, with the expectation that site specific underwater noise modelling will confirm a lack of connectivity and the conclusion of no LSE for all migratory fish (and FWPM) SACs.

- 5.1.13 Freshwater pearl mussel (FWPM) is a mollusc that occurs in rivers and streams but is included in the onshore HRA Screening process due to the potential for an indirect connectivity. The FWPM spends its larval stage attached to the gills of salmonid fish; therefore, a potential LSE for Atlantic salmon (*Salmo salar*) could result in an indirect potential LSE for FWPM, and the species is screened following the same principles as migratory fish.
- 5.1.14 Key existing data sources include those associated with relevant designated sites. Information is primarily available through NatureScot, and JNCC where relevant. These will be drawn on as required for the subsequent assessment with respect to Annex II migratory fish and FWPM features screened into the assessment.
- 5.1.15 The River Spey SAC represents the northly range of sea lamprey. Data for the SAC populations are highly focused on the SAC itself.
- 5.1.16 A number of existing data sources are available for migratory fish and FWPM, including for migratory fish outside SAC boundaries. These include the following:
- Early marine distribution information (Gilbey *et al*, 2021);
 - Monitoring in relation to local offshore wind farm projects (e.g., Beatrice⁶);
 - The Moray Firth salmon tracking project (if results are publicly available – preliminary results expected this year but may not be disseminated beyond management recommendations)⁷;
 - Dee Salmon Fishery Board salmonid tracking project⁸; and
 - Scottish Wild Salmon Strategy⁹.
- 5.1.17 The River Spey SAC, with migratory fish and/or FWPM as designated features, is included within the Onshore HRA Screening assessment. Several additional SACs along the east coast where Atlantic salmon and FWPM are a designated feature, are considered beyond the Zone of Influence of the Onshore HRA Screening assessment. These are addressed in the Offshore Screening Report (Orsted, 2023c).

Site Specific Surveys

- 5.1.18 A round of marine surveys is planned for Q2 2024, which may be informative for migratory fish/FWPM in the Proposed Offshore Development (i.e., fish and FWPM). For example, water eDNA samples will be collected from stations in the array and along each ECC route, to better understand fish communities in the area. These samples will be analysed against two assays, 'fish' and 'vertebrates', to increase the likelihood of a greater number of fish species being identified in water samples.

⁶ <https://marine.gov.scot/sites/default/files/00534044.pdf>

⁷ <https://atlanticsalmontrust.org/our-work/morayfirthtrackingproject/>

⁸ <https://www.deeppartnership.org/project/smolt-tracking/>

⁹ <https://www.gov.scot/publications/scottish-wild-salmon-strategy/>

5.1.19 For the purposes of the Proposed Onshore Development, this data will be analysed alongside fish habitat surveys to indicate presence/ likely absence of fish and marine mammal groups.

Marine Mammal Species

Existing Data Sources

5.1.20 Section 4.3 of the Stromar Offshore HRA Screening Report (Orsted, 2023c; provided with this Report) details an account of marine mammals noted within existing data sources collated to date of relevance to the Offshore HRA Screening; including, harbour porpoise (*Phocoena Phocoena*), bottlenose dolphin *Tursiops truncatus*, grey seal (*Halichoerus grypus*) and harbour seal (*Phoca vitulina*). A number of SACs for harbour seal and grey seal are located around Scotland, with a single SAC for bottlenose dolphin (Moray Firth SAC, approximately 69.5 km west of the onshore development area) and a single SAC for harbour porpoise (Inner Hebrides and the Minches SAC, located to the west coast of Scotland). The Moray Firth population (with a baseline population of 101-250 individuals) is known to regularly travel down the east coast of Scotland and individuals have been reported in waters off Ireland and the Netherlands (NatureScot, 2021).

5.1.21 Known sources of data include the following:

- SCANS III survey data (Hammond *et al*, 2021);
- The Joint Cetacean Protocol (JCP);
- The reports issued by Special Committee on Seals (SCOS);
- Seal telemetry data (Carter *et al* 2020 and Carter *et al* 2022);
- Marine mammal monitoring within the Moray - For example Arso Civil *et al* (2021); and
- East coast of Scotland bottlenose dolphins: estimate of population size (2015-2019)¹⁰.

5.1.22 For the purposes of the Onshore HRA screening, all four marine mammal species are considered within this assessment as are highly mobile and may be present within the potential Zone of Influence (Zoi) of the Proposed Onshore Development works area to MLWS mark.

Site Specific Surveys

5.1.23 Digital Aerial Surveys (DAS) were initiated in March 2022 for the Proposed Offshore Development, with a planned completion date of April 2024. Results from the first year of surveys found harbour porpoise to be the most abundant marine mammal in the survey area, with a total of 73 sightings recorded throughout the survey period, peaking at 20 in January 2023. They were sighted in seven of the 12 months surveyed throughout the first survey year. One grey seal was also observed, in April 2022, and 11 unidentified seal or small cetacean individuals, peaking in April 2022 with four animals recorded. Other optional offshore surveys may be carried out as relevant. With the onshore and Proposed Offshore Developments overlapping at MLWS to MHWS within the landfall intertidal zone, the survey data collated for the Proposed Offshore Development will be taken to inform the Proposed Onshore Development where relevant.

¹⁰ <https://www.nature.scot/doc/east-coast-scotland-bottlenose-dolphins-estimate-population-size-2015-2019>

Onshore and Intertidal Ornithology

Existing Data Sources

- 5.1.24 Key existing data sources include those associated with relevant designated sites. That information is primarily available through NatureScot, with links to JNCC and the wider European network where relevant. These will be drawn on as required for the subsequent assessment with respect to ornithological features screened in.
- 5.1.25 A number of existing data sources are available for onshore and intertidal ornithology. These include the following:
- Natural Heritage Zone Bird Population Estimates, (Wilson *et al.* 2015);
 - WeBS data, (Austin *et al.* 2023);
 - Potential impacts of offshore windfarms on ornithological receptors, (Wade *et al.*, 2016);
 - Bird distribution, migration and foraging movements, (Balmer *et al.*, 2013, Woodward *et al.* 2019, Goodship and Furness 2022);
 - Bird breeding ecology, population estimates and demographic rates (Cramp and Simmons, 1977-94; Robinson, 2005; Woodward *et al.*, 2020, and Furness, 2015); and
 - Existing OWF data, A significant amount of information from previous and current development in Scotland and the region relevant to this Project can be found on the Marine Directorate website¹¹.

Site Specific Ornithological Surveys

Wintering Bird Survey (Landfall Locations)

- 5.1.26 To achieve two years of wintering bird data, surveys were commenced in October 2022 at seven potential landfalls, which would support a connection point at New Deer 2. These were undertaken at seven potential locations whilst the grid connection location is not determined (selection process in progress). A second year of surveys is underway (commenced in October 2023) at two locations (whilst selections process continuing). Targeted surveys are for wintering waterbirds (other notable species, including priority species, are also recorded). Methods are based on an enhanced WeBS Core Counts 'look-see' methodology (Bibby *et al.* 2000), whereby a predefined area (in this case the landfall area plus a 500 m buffer) is counted through the tide. Each location is surveyed for six hours per month during October to March. The area surveyed includes the intertidal zone and inland fields which may be used for roosting. All surveys take place during daylight hours, with intertidal surveys covering low to high tide (or vice versa) on each visit.

Breeding Bird Survey

- 5.1.27 Breeding bird surveys were commenced at two potential landfall locations in 2023, with a second year of surveys programmed for 2024. Breeding bird surveys for the remainder of Proposed Onshore Development are programmed for 2024. Targeted surveys for breeding birds (Gilbert *et al.* 1998) within a minimum of 100 m of the landfall area, and up to 250 m of the remainder of the Proposed Onshore Development, where (i) specially protected species could occur i.e. those listed on Schedule 1 of the Wildlife and Countryside Act, as amended, and those listed in Annex

¹¹ <https://marine.gov.scot/mslot-all-application-and-project-documentation>

1 of the EC Birds Directive; (ii) wetland, scrub and woodland habitats potentially supporting sensitive and declining species, such as breeding waders or notable wildfowl, could occur; and (iii) permanent above ground infrastructure will be built. Monthly visits will be undertaken from April to early July 2024 inclusive.

- 5.1.28 On completion of 2024 surveys, an assessment will report reviewed survey data to inform the requirements, if any, for further breeding bird surveys in 2025. This report will be shared with key stakeholders (i.e., NatureScot and Aberdeenshire Council).

Wintering Wildfowl Surveys (OnECC, OnGCC, OnSS and OnRCS)

- 5.1.29 As above, targeted surveys are for wintering waterbirds, in particular geese and swans. Other notable species, including priority species, are also recorded. Methods are based on a combination of the enhanced WeBS Core Counts 'look-see' methodology (Bibby et al. 2000), the goose feeding distribution survey methodology (SNH 2017) and goose roost surveys (Gilbert et al. 1998) within up to 2 km. Surveys are targeted at areas identified through desk study (via the sources listed in Table 8.9 of the Stromar Onshore Scoping Report (Orsted, 2023a)) as potentially important for foraging and roosting wildfowl.

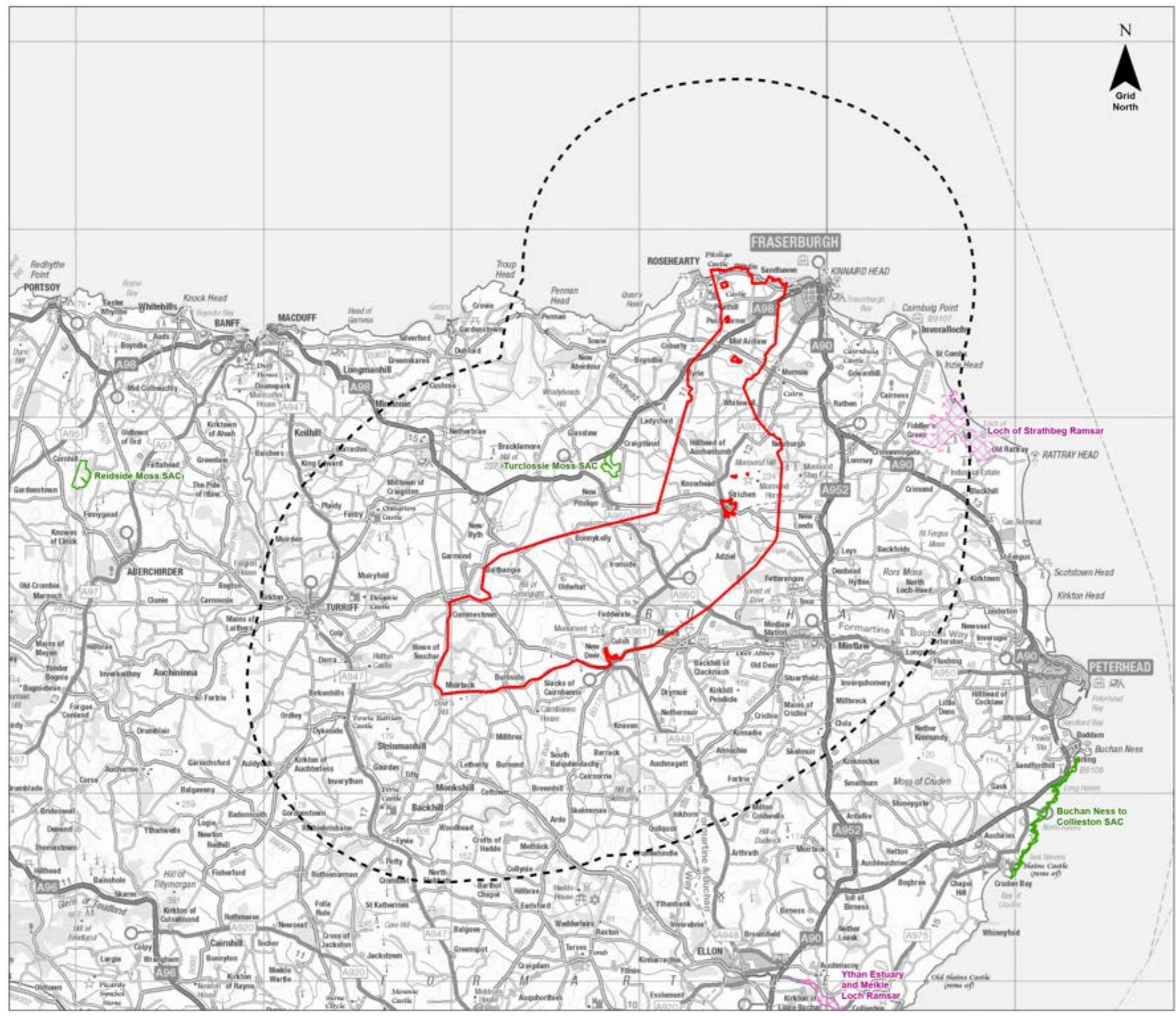
International and European Sites of the National Network

- 5.1.30 A breakdown of European and International sites designated for the purpose of non-avian nature conservation is provided in **Table 5.1**, with locations illustrated in **Figure 5.1**.

Stromar Offshore Wind Farm

Figure 5.1 Statutory (Non-Avian) Designated Sites Within 10 km

- Legend**
- Onshore Scoping Area
 - Onshore Scoping Area 10 km Buffer
 - Special Area of Conservation (SAC)
 - Ramsar



Coordinate System: British National Grid
 Scale @ A3 : 1:200,000
 0 2.5 5 Kilometres
 0 2 4 8 Miles

Rev	Description	Date
00	First Draft	19/12/2023
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Doc. Report : HRA Report
 Doc. Title : Designations for Non-Avian Nature Conservation Value.
 Doc. No : 404.V64554.00001.0075.1
 Doc. No of Pages : 1
 Created by : SH
 Checked by : JK
 Approved by : MF



Table 5.1: European Sites Designated for Non-Avian Conservation Purposes within the Potential Zone of Influence of the OSA

Site	Qualifying Feature(s) and Most Recent Condition Assessment	Distance and Orientation from OSA and Associated Ecological/Hydrological Connectivity
Turcrossie Moss SAC	<p>The following Annex I habitats are a primary reason for site selection:</p> <ul style="list-style-type: none"> Active raised bog. The latest assessed condition was Unfavourable No change, assessed in October 2010; and Degraded raised bog still capable of natural regeneration. The latest assessed condition was Unfavourable Declining, assessed in August 2016. 	<p>Located approximately 2.35 km north at its nearest point from the OSA.</p> <p>Habitats potentially ecologically functionally linked/within potential Zone of Influence.</p> <p>The SAC lies within the North Ugie Water catchment, of which the OSA intersects downstream of the SAC.</p>
Loch of Strathbeg Ramsar	<p>The following interest features are reasons for site selection:</p> <ul style="list-style-type: none"> It is the largest dune slack pool in Britain; and Features of ornithological interest, as described in Table 5.7. 	<p>Located approximately 7.76 km east at its nearest point from the OSA.</p> <p>Habitats potentially ecologically functionally linked/within potential Zone of Influence.</p> <p>This Ramsar is positioned within the Burn of Savoch/Logie Burn catchment, of which sits outside of the OSA. Hydrological connectivity between the Ramsar and OSA is therefore not considered to exist.</p>
Moray Firth SAC	<p>The following interested features are reasons for site selection:</p> <ul style="list-style-type: none"> Bottlenose dolphin <i>Tursiops truncatus</i> – latest condition assessment favourable (maintained) (2016); and Subtidal sandbanks - latest condition assessment favourable (maintained) (2004). 	<p>Located approximately 69.5 km west at its nearest point from the OSA.</p> <p>Hydrological connectivity exists between the Proposed Onshore Development works down to the MLWS mark. Marine mammal species may be present within the intertidal zone when the tide ingresses to the works area and are included within a potential ZOI for this reason. Effects may also not be restricted to this zone (e.g., potential effects of noise).</p> <p>Ecological/hydrological functional connectivity exists between the proposed Site works area, the MLWS mark and the subtidal sandbanks (whilst the distance of 200 km has been defined as relevant for cetacean species).</p>
Lower Spey SAC	<p>The following interested features are reasons for site selection:</p> <ul style="list-style-type: none"> Alder woodland on floodplains - latest assessment condition unfavourable (2013); and Coastal shingle vegetation outside the reach of waves – latest assessment condition favourable (declining) (2013). 	<p>Located approximately 58.9 km at its nearest point from the SAC.</p> <p>Hydrological connectivity does exist between the proposed works and the SAC (via coastal waters). The coastal shingle vegetation would be beyond the influence of coastal waters.</p> <p>Alder woodland on floodplains is potentially hydrologically connected to the Site (albeit at a considerable distance). Alder is capable of enduring coastal conditions and has the potential to be within the coastal estuarine zone (the locations of alder woodland within the SAC is to be established in future assessment).</p>

Site	Qualifying Feature(s) and Most Recent Condition Assessment	Distance and Orientation from OSA and Associated Ecological/Hydrological Connectivity
River Spey SAC	<p>The following interested features are reasons for site selection:</p> <ul style="list-style-type: none"> • Otter – latest assessment condition favourable (maintained) (2011); • Freshwater pearl mussel (FWPM) - latest assessment condition unfavourable (declining) (2014); • Sea lamprey - latest assessment condition favourable (maintained) (2011); and • Atlantic salmon - latest assessment condition unfavourable (recovering) (2011). 	<p>Located approximately 58.9 km at its nearest point from the SAC.</p> <p>Hydrological connectivity does exist between the proposed works and the SAC as the OSA does intersect with the catchment (via coastal waters). Nevertheless, it is acknowledged that there is a considerable distance along the coast and the direction of river flow would denote that no hydrological influence can be made to the River Spey SAC (that is separate by a reach of the Lower Spey SAC).</p> <p>The highly mobile natures of the features are considered. With otter inhabiting a home range of up to 50 km (Chanin, 2003), the effect on otter is screened out.</p> <p>Owing to the mobile, wide-ranging ecology of Atlantic salmon, FWPM (survival reliant on salmon) and sea lamprey, migratory fish and FWPM may potentially be present within the ZoI yet not possible to determine whether directly linked/ecologically functionally connected to the SAC (refer to NatureScot advice within Potential Pathways of Effect section in this assessment).</p>

Conservation Objectives

Turclossie Moss SAC

- 5.1.31 Conservation objectives for active and degraded raised bog are the same for both qualifying features. Firstly, to ensure qualifying features for SAC status are in favourable condition and appropriately contributing to achieving favourable status for the site. Secondly ensuring the integrity of the SAC by meeting sub-objectives 2a, 2b, and 2c. This will allow the degraded raised bog to be restored to active raised bog and restore the active raised bog to favourable condition. 2a aims to maintain extent and distribution of raised bog onsite and increase the extent of active raised bog by restoring degraded raised bog. 2b aims to restore the structure, function, and supporting processes of raised bogs. 2c aims to restore distribution and viability of typical bog species particularly those involved in “bog-building”. Conservation objectives for Turclossie Moss are detailed in full in the Conservation Advice Package provided in **Appendix A**.

Loch of Strathbeg Ramsar

- 5.1.32 To avoid deterioration of habitats of or significant disturbances to qualifying species thus maintaining the integrity of the site. Also ensuring the qualifying species are maintained long-term by keeping the population; distribution; distribution of habitat; structure, function and supporting processes viable in/on the site.

Moray Firth SAC

- 5.1.33 Conservation objectives are similar for both qualifying features. Firstly, to ensure qualifying features for SAC status are in favourable condition and appropriately contributing to achieving favourable status for the site. Secondly ensuring the integrity of the SAC by meeting sub-objectives 2a, 2b, and 2c. This will allow the features to be restored to favourable condition. 2a aims to maintain extent and distribution onsite for sandbanks and that bottlenose dolphins are a viable component of the site. 2b aims to restore the structure, function, and supporting processes of the sandbanks and the distribution of dolphins on site is maintained. 2c aims to restore distribution and viability of the sandbanks and the supporting habitats and availability of prey for dolphins is maintained. Conservation objectives for Moray Firth SAC are detailed in full in the Conservation Advice Package provided in **Appendix A**.

Lower River Spey – Spey Bay SAC

- 5.1.34 Conservation objectives are the same for both qualifying features. Firstly, to ensure qualifying features for SAC status are in favourable condition and appropriately contributing to achieving favourable status for the site. Secondly ensuring the integrity of the SAC by meeting sub-objectives 2a, 2b, and 2c. This will allow the features to be restored to favourable condition. 2a aims to maintain extent and distribution onsite. 2b aims to restore the structure, function, and supporting processes of both the alter woodland and shingle. 2c aims to restore distribution and viability of typical feature species. Conservation objectives for Lower River Spey – Spey Bay SAC are detailed in full in the Conservation Advice Package provided in **Appendix A**.

River Spey SAC

- 5.1.35 Conservation objectives for all the qualifying features - species. Firstly, to ensure qualifying features for SAC status are in favourable condition and appropriately contributing to achieving favourable status for the site. Secondly ensuring the integrity of the SAC by meeting sub-objectives 2a, 2b, 2c, and 2d for freshwater pearl mussels. This will allow the features to be

restored to favourable condition. 2a aims to maintain the species as a viable component onsite. 2b aims to restore the distribution of species through the site. 2c aims to restore habitats supporting the species and availability of food on site. And 2d aims to restore the distribution and viability of freshwater pearl mussel host species on site. Conservation objectives for Lower River Spey – Spey Bay SAC are detailed in full in the Conservation Advice Package provided in **Appendix A**.

Current Pressures

Turclossie Moss SAC

- 5.1.36 Pressures on the Turclossie Moss SAC largely revolve around the hydrology issues on site with too much water draining which adversely impacts all the other features and exacerbates other problems such as scrub encroachment, nutrient enrichment, and allows undesirable woody species such as the Sitka spruce *Picea sitchensis* to continue thriving.

Loch of Strathbeg Ramsar

- 5.1.37 The Ramsar information sheet lists no reported factors adversely affecting the site's ecological character suggesting the site is currently in good management.
- 5.1.38 No factors are reported in the public domain to be adversely affecting the site's ecological character, including changes in land (including water) use and development projects that would translate to current knowledge of current pressures for this site.

Moray Firth SAC

- 5.1.39 Subtidal sandbanks can be sensitive to physical disturbance and have low resilience to non-native species or changes in water quality.
- 5.1.40 Bottlenose dolphins are sensitive to a variety of pressures including from fishing (entanglement and prey removal), pollution, underwater noise, and collision.

Lower River Spey – Spey Bay SAC

- 5.1.41 Current pressures are mostly focussed on invasive species and manmade flood prevention interventions affecting the hydrology and affecting native species regeneration.

River Spey SAC

- 5.1.42 Current pressures include water quality issues for all species – both pollution and sedimentation; water level issues (from drought and abstraction); river barriers and engineering; and invasive species. Climate change is also predicted to put more and more pressure on the SAC.

Current Management

Turclossie Moss SAC

- 5.1.43 The bog areas are subject to a number of conservation management measures aiming to resolve various issues within the Turclossie Moss SAC. These include ditch blocking; scrub and tree clearance; other peatland restoration including reprofiling a peat bank and creation of a bund to reduce water loss; avoidance of nutrient enrichment through maintenance of natural hydrology; and research and monitoring to identify emerging impacts and causes.

Loch of Strathbeg Ramsar

- 5.1.44 Currently management of the dune slack pool at the Lock of Strathbeg RAMSAR site includes designation as an SSSI and SPA. It is owned by an NGO for nature conservation with a management agreement and site management statement/plan implemented.

Moray Firth SAC

- 5.1.45 There is little current active management of the SAC by any one body but there is a raft of advice for management and reduction of impacts of activities on sensitive features. There are several SSSIs within the SAC and these have their own management regimes which require approval to be changed.

Lower River Spey – Spey Bay SAC

- 5.1.46 Current and recommended management focusses on addressing the main site issues. Biosecurity, other invasive species interventions, and focussing on working with stakeholders to discourage negative development and include more sustainable interventions where appropriate are the two major management interventions. Other interventions include litter removal, reduction in tracking/trampling, maintenance of SAC features through management plans.

River Spey SAC

- 5.1.47 Current and recommended management focusses on addressing the main site issues which are invasive species, pollution, species mortality, and water flow. Management actions include invasive species management (biosecurity, monitoring, control); research and monitoring; fish barrier removal; by-catch prevention; sediment load prevention and management.

Potential Pathways of Effect

For the Proposed Onshore Development Alone

Terrestrial and Freshwater Habitat and Benthic and Subtidal Ecology

- 5.1.48 Non-avian Annex I habitat features are static in the sense that they occur wholly within the spatial extent of the protected site and so both the direct footprint of the Proposed Onshore Development and the potential range of each pressure is relevant to screening. The specific pressures relevant to screening for this feature group are detailed in **Table 5.2**. Where a pressure can act through a pathway beyond the footprint of the Proposed Onshore Development, a 15 km Zone of Influence (Zol) for onshore and offshore habitats is applied. This distance reflects the standard applied at Plan level¹², and is within the typical range for project level (e.g., 10 km was applied for Pentland and West of Orkney), as well as being consistent with the 6 km range being applied at Scoping for benthic habitats.
- 5.1.49 As a reminder, the Proposed Onshore Development aspect abbreviations are as follows:
- OnSS - Onshore Substation/Converter Station;
 - OnGCC – Onshore Grid Connection Corridor;
 - OnRCS – Onshore Reactive Compensation Station;

¹² For example: <https://www.marinedataexchange.co.uk/details/3582/2022-the-crown-estate-2020-offshore-wind-round-4-plan-habitats-regulations-assessment/packages/10649?directory=%2F>

- OnECC – Onshore Export Cable Corridor; and
- OSA – Onshore Scoping Area.

5.1.50 The OSA includes the OnECC and so no mention of the OnECC does not preclude this Proposed Onshore Development aspect from the assessment. The abbreviations for relevant phase of the Proposed Onshore Development are as follows:

- C – Construction;
- O&M – Operation and maintenance; and
- D – Decommissioning.

Marine Mammals

5.1.51 Annex II marine mammal species are highly mobile so the direct footprint of the Project, the potential Zol for each pressure and the ranging behaviour of each species (and their prey) are relevant to screening. The specific pressures relevant for this receptor group are detailed in **Table 5.2**. It is noted that recent screening reports for offshore wind, including those for floating wind projects in Scottish waters, have applied varying screening parameters for marine mammals to take account of both the potential Zol of different pressures and the highly mobile nature of these species. This has resulted in distances applied varying between 15 and 200 km, as well as the use of Management Units (e.g., Moray West (2017), Highland Wind Ltd. (2022), Xodus (2022b)). For the Project, 200 km is applied as a conservative value for both bottlenose dolphin and harbour porpoise, to exceed the expected Zol of all Project level pressures and to reflect ranging behaviour.

5.1.52 Whilst the distance of 200 km has been defined as appropriate for cetacean species, NatureScot define site connectivity distances for seals as 50 km for harbour seal and 20 km for grey seal, as specified in Scoping Responses such as that for the MarramWind Project¹³, and therefore these respective distances have been used for screening out for pinniped species.

Otter

5.1.53 With otter inhabiting a home range of up to 50 km (Chanin, 2003), the effect on otter is screened out (River Spey SAC located 58.9 km west of the Proposed Onshore Development scoping boundary).

Migratory Fish and Freshwater Pearl Mussel

5.1.54 NatureScot agreed that the advice on migratory fish (addressed offshore in EIA only and not HRA) applies to the Project (Section 6.5 of the Stromar Offshore HRA Screening Report (Orsted, 2023c; provided with this Report)). Agreed if no connectivity that the closest such site to the Project (the River Spey SAC, which lies just within 50 km of the ECC could also be screened out (Table 6.18 of the Stromar Offshore HRA Screening Report (Orsted, 2023c))).

5.1.55 Based on the NatureScot consultation response for the Salamander project¹⁴, advice on assessment of migratory fish in HRA Screening is:

¹³ https://marine.gov.scot/sites/default/files/appendix_i_-_consultation_responses_advice_0.pdf

¹⁴ https://marine.gov.scot/sites/default/files/appendix_i_-_consultation_representations_and_advice_5.pdf

- *'Due to uncertainty on where migratory fish (Atlantic salmon, sea trout and sea and river lamprey) go within marine waters and connectivity back to natal rivers we consider these species should be assessed through EIA only and not through HRA...For diadromous fish species we do not have population data for any salmon or lamprey SAC on the data forms. This inability to understand connectivity to and within individual rivers to the development area, currently prohibits an informed assessment of the impact on individual site integrity. We are aware of work being led by ScotMER on diadromous fish and this is an area of research that may change conclusions on how diadromous fish are treated in both EIA and HRA going forward.*

- 5.1.56 On that basis, taking into account NatureScot scoping advice on the MarramWind project¹⁵ and, taken forward in other HRA Screening reports in the public domain and in production, whereby it is considered that the lack of data on migratory fish at sea mean it would not be possible to identify potential connectivity between individual fish at sea and specific SACs, NatureScot were advised that the project intended to screen out assessment of impacts on migratory and diadromous fish within the marine environment within this assessment (with fish at sea to be assessed solely in the future Chapter 8: Ecology, Biodiversity and Nature Conservation of the Onshore EIAR, where relevant).
- 5.1.57 During the Scoping Workshop (16 November 2023) NatureScot agreed that the advice (that migratory fish be addressed in the onshore EIA only and not HRA) applies to the Proposed Onshore Development. It was agreed that if there is no connectivity of the closest such site to the Project (the River Spey SAC, which lies just within 58.9 km of the Proposed Onshore Development), that migratory fish and FWPM could also be screened out within the HRA.
- 5.1.58 The maximum relevant Zol with potential for connectivity to a SAC boundary is for underwater noise, with a precautionary distance of 50 km applied for underwater noise (with other pressures within 15 km, to reflect an appropriate Zol). That distance for underwater noise is intended to encompass the maximum range of relevant underwater noise contours that may result in a behavioural response from migratory fish (e.g. startle, disruption of feeding, avoidance of an area) and is greater than the 10-20 km (disturbance) established through modelling at Berwick Bank¹⁶, the less than 5 km (temporary threshold shift, TTS) at Green Volt¹⁷ and the less than 19 km (TTS) at Pentland¹⁸. The 50 km range to establish potential connectivity directly to a SAC boundary is therefore deemed precautionary (but will be confirmed once site specific modelling has been undertaken).
- 5.1.59 The Proposed Onshore Development is 58.9 km from the River Spey SAC boundary (that is designated in part for salmon, sea lamprey and FWPM (connected via marine environment of the Moray Coast).

¹⁵ https://marine.gov.scot/sites/default/files/appendix_i_-_consultation_responses_advice_0.pdf

¹⁶ https://marine.gov.scot/sites/default/files/eor0766_berwick_bank_wind_farm_-_riaa_-_part_2_-_sac_assessments.pdf

¹⁷ <https://marine.gov.scot/sites/default/files/232cfe1.pdf>

¹⁸ https://marine.gov.scot/sites/default/files/chapter_10._fish_and_shellfish_ecology.pdf

Table 5.2: *European Sites Designated for Non-Avian Conservation Purposes within the Potential Zone of Influence of the OSA and Potential Effects on Qualifying Interest Features*

Site	Closest Distance to the Proposed Onshore Development (km)	Potential Effects on Qualifying Interest Features	
Turclossie Moss SAC	2.35 km, North of OSA	Active raised bog	Risk of pollution (air and water). Risk of introduction of invasive non-native species.
		Degraded raised bog	Risk of pollution (air and water). Risk of introduction of invasive non-native species.
Loch of Strathbeg Ramsar	6.76 km, East of OSA	Dune slack pool	No non-avian potential effects predicted for dune slack due to lack of hydrological connectivity and distance beyond the ZoI for risk of pollution or risk of introduction of non-native species. Will not be taken forward for non-avian assessment on that basis for the Proposed Onshore Development alone yet will be considered for in-combination assessment.
Moray Firth SAC	69.5 km, West of OSA	Bottlenose dolphins	Risk of pollution and disturbance, collision, and auditory injury resulting from works/boat traffic within the MLWS zone, potentially posing indirect effects, depending on range of bottlenose dolphins and whether works would pose impacts temporally (i.e., tidal considerations).
		Subtidal sandbanks	Risk of pollution. Risk of geomorphological changes to this habitat from physical works in MLWS zone disrupting coastal sediment dynamics. Risk of non-native species introduction.
Lower River Spey – Spey Bay SAC	58.9 km, West of OSA	Alder woodlands	Risk of impacts of water pollution or introduction of non-native species.
		Coastal shingle vegetation	Risk of introduction of non-native species.
River Spey - SAC	58.9 km, West of OSA	Freshwater pearl mussels (FWPM)	Indirect risk of mortality due to direct/indirect risk of disturbance of host species (Atlantic salmon). Risk of non-native species introduction indirectly impacting FWPM habitat.
		Atlantic salmon	Direct and indirect risk of mortality and water pollution impacts. Risk of non-native species introduction indirectly impacting salmon habitat outside SAC.
		Sea lamprey	Direct and indirect risk of mortality and water pollution impacts. Risk of non-native species introduction indirectly impacting sea lamprey habitat outside SAC.
		Otter	Risk of direct/indirect mortality and/or disturbance as well as indirect impacts due to habitat degradation (i.e., pollution impacts) and impacts to prey species (e.g., fish assemblage). Severance of community routes along specific waterways/coastal habitats.

Potential Pressures and Screening Parameters

- 5.1.60 **Table 5.3** details potential pressures that may arise via the Proposed Onshore Development; introduced with detail of the Proposed Onshore Development aspect and phase they relate to, detail of that pressure, and the screening parameters for that pressure before providing a justification of the assessment parameters.
- 5.1.61 The Onshore Screening Boundary has been applied in a GIS screening tool, together with the screening parameters set out in **Table 5.3**, to determine which designated site(s) with Annex I habitat feature(s) are located within the relevant ranges. A site/feature within that range would be screened in for the relevant pressure(s), Proposed Onshore Development phase(s) and Proposed Onshore Development aspect(s) unless it is clear that no potential for connectivity exists (for example the feature is located above the high water and the pressure is subtidal) or it can be concluded that the potential for effect would be *de minimis*, with no appreciable effect on the site.

Table 5.3: Potential Pressures and Screening Parameters for Onshore Ecology

Potential Pressures	Proposed Onshore Development Aspect	Proposed Onshore Development Phase	Pressure Detail	Screening Parameter	Justification
Direct habitat loss, disturbance, degradation, and/or physical impact	OnECC	C, O&M and D	<p>This relates to the physical impact caused by, for example, excavation works and cable burial. Includes for the loss/degradation of habitats as a result of airborne or hydrological pollution/contamination incidents associated with connectivity between European sites and the OSA.</p> <p>This is a permanent impact which can occur during the construction phase - also assessed during the O&M phase.</p> <p>Impact is restricted to the footprint of the Proposed Onshore Development and up to 30 m buffer for peatland/carbon rich/priority peatland habitats.</p>	Footprint of OnECC and up to 250 m buffer for terrestrial GWDTE habitats/up to 30 m buffer for peatland/carbon rich/priority peatland habitats plus up to 15 km for aquatic connected habitats , once defined. Given design uncertainties, this is considered for the OSA at present	Impact restricted to footprint of the Proposed Onshore Development (OSA) plus up to 15 km for aquatic connected habitats and up to 250 m buffer for terrestrial GWDTE habitats/up to 30 m buffer for peatland/carbon rich/priority peatland habitats
Indirect Physical Impact (to habitat)	OSA	C	This relates to changes in in air quality or hydrological quality and/or flows during construction of the OnECC, in turn affecting the composition of plant communities present within and beyond designated sites and benthic/intertidal ecology.	Footprint of OnECC and up to 15 km for discernible hydrological effects to aquatic (riparian/benthic/intertidal) habitats. 2.5 km buffer for terrestrial potential effects (e.g., considering effects of air quality in absence of mitigation/AA). Given design uncertainties at Screening stage, this is considered for the OSA at present	Footprint of the Proposed Onshore Development (OSA) plus 15 km buffer for discernible hydrological effects to aquatic receptors and 2.5 km buffer for potential air quality effects) in the absence of mitigation

Potential Pressures	Proposed Onshore Development Aspect	Proposed Onshore Development Phase	Pressure Detail	Screening Parameter	Justification
Invasive Non-Native Species (INNS)	OSA	C, O&M and D	INNS may be spread via hydrological/air/transport vectors and act to outcompete native habitat with impacts to native flora/fauna.	15 km overland land and within hydrological connectivity from OSA	Footprint of the Proposed Onshore Development (OSA) plus 15 km buffer (to account for Zone of Influence of spread via airborne pathways and vehicle/plant movements). Zone of influence for hydrological connectivity to be determined in future assessment.
Toxic Contamination/Pollution (suspended sediments) (direct and indirect)	OSA	C, O&M and D	This relates to reduced water or sediment quality from, for example, spillages or mobilisation of contaminated sediments.	15 km from OSA	Footprint of the Proposed Onshore Development (OSA) plus 15 km buffer (to account for Zone of Influence) as defined by hydrological professional judgement on the discernible effects of water quality in-combination
Underwater Noise and Vibration (direct and indirect)	OSA	C, O&M and D	This relates to acoustic degradation of the underwater environment and vibration caused by a variety of works or sources which can impact marine life, particularly cetaceans and migratory fish (indirectly FWPM).	200 km for cetaceans and 50 km for fish from OSA (precautionary professional judgement in absence of assessment at screening stage).	Footprint of the Proposed Onshore Development (OSA) plus 200 km buffer for cetaceans and 50 km buffer for fish (to account for predicted Zone of Influence)
Direct mortality and disturbance via vessel collision risk and in-water works (tide-restricted to bottlenose dolphins)	OSA	C, O&M and D	Any collision with or disturbance of marine life, particularly bottlenose dolphin and migratory fish.	Distance from OSA to be confirmed based on future assessment. Precautionary approach taken to all marine areas within OSA and 10 km buffer at present.	Footprint of the Proposed Onshore Development in coastal zone to MLWS within the OnECC plus 10 km buffer (to account for predicted Zone of Influence)
Indirect impacts of changes to prey	OSA	C, O&M and D	Effects relating to underwater noise, loss of habitat, vessel movements, and in combinations effect that reduce the availability of prey, particularly for terrestrial, freshwater and marine mammals (i.e., bottlenose dolphin) and migratory fish.	Distance from OSA to be confirmed based on future assessment. Taken to be 5 km for freshwater/terrestrial features and 10 km for marine features at present.	Footprint of the Proposed Onshore Development (OSA) plus various buffers (to account for Zone of Influence on each feature home/foraging range, to be determined in future assessment). Precautionary parameters set at this stage.

Potential Pressures	Proposed Onshore Development Aspect	Proposed Onshore Development Phase	Pressure Detail	Screening Parameter	Justification
Direct loss of foraging areas	OSA	C, O&M and D	Relating to loss of areas in which to forage for food for all faunal groups of relevance to designate site features and their prey.	Distance from OSA to be confirmed based on future assessment. Taken to be 5 km for freshwater/terrestrial features and 10 km for marine features at present.	Footprint of the Proposed Onshore Development (OSA) plus various buffers (to account for Zone of Influence on each feature home/foraging range, to be determined in future assessment)

For the Proposed Onshore Development in Combination with Other Projects and Plans

- 5.1.62 All the potential pressures identified in **Table 5.3** will be assessed in-combination with other projects and plans. Commencing with in-combination assessment with the Proposed Offshore Development and replication for all projects listed in **Section 3.2**.

5.2 Assessment of ‘Likely’ Significant Effect – Non-avian

For the Proposed Onshore Development Alone

- 5.2.1 The protected sites and features where potential for connectivity has been identified for the OnECC and OSA are summarised in **Table 5.4** including the relevant pressures, Proposed Onshore Development phase and Proposed Onshore Development aspect. That process takes account of the mobile nature of species and the Zol of the Proposed Onshore Development. The consideration of the potential for LSE made here will be revisited at the Appropriate Assessment stage to takes account of recent NatureScot advice on comparable projects (for example, as specified in **Section 3.2**). The potential for LSE therefore takes account of the boundary of the designated sites and the potential for connectivity to features associated with them.
- 5.2.2 The maximum relevant Zol with a precautionary approach considering potential for connectivity to a SAC feature is for 50 km for otter (not defined by the designated site boundary itself, rather considering the potential nature of effects combined with ecology of the features within and beyond the defined site boundaries to reflect the indicative Zol). All assumptions of the Screening Stage will be reassessed at Appropriate Assessment, whereby, scientific basis and professional judgement will be employed to make firm judgement on the above and to take forward in assessment. This will include for migratory fish and dependant species (i.e., FWPM). Otter is currently screened out.
- 5.2.3 The conclusion on the potential for LSE in **Table 5.4** confirms those sites and features that will progress forward for assessment (noting that the distances provided are measured in a straight line and do not account for terrain or sinuous freshwater networks).

Table 5.4: Sites and Features Where Potential for LSE Exists for Non-Avian Features

Protected Site	Distance from Proposed Onshore Development	Feature	Proposed Onshore Development Aspect	Proposed Onshore Development Phase	Pressure	Determination of LSE
Turclossie Moss SAC	2.4 km	Active raised bog	OnECC, OSA	C, O&M and D	Risk of direct and indirect pressures to habitat via pollution/toxic contamination from site run off (15 km) and air pollution (2.5 km) affecting habitat quality plus spread of INNS (5 km overland and 15 km hydrological spread).	Due to the close proximity with ZoI, it is concluded there are potential LSEs resulting from the pressures noted. Most notably in C and D phases.
		Degraded raised bog	OnECC, OSA	C, O&M and D	Risk of direct and indirect pressures to habitat via pollution/toxic contamination from site run off (15 km) and air pollution affecting habitat quality (2.5 km) plus spread of INNS (5 km overland and 15 km hydrological spread).	Due to the close proximity with ZoI, it is concluded there are potential LSEs resulting from the pressures noted. Most notably in C and D phases.
Moray Firth SAC	69.5 km	Bottlenose dolphin	OnECC, OSA	C, O&M and D	Direct/indirect disturbance, direct mortality resulting from collision, auditory injury from underwater noise depending on range of dolphins and route of boats/in-water activities employed in C and D phase (200 km for cetaceans), direct loss of foraging areas (15 km), plus indirect impacts of physical habitat degradation, via risk of pollution/toxic contamination, and impacts of changes to prey species (i.e., migratory fish).	Due to the close proximity with ZoI, it is concluded there are potential LSEs resulting from the pressures noted. Most notably in C and D phases.
		Subtidal sandbanks	OnECC, OSA	C, O&M and D	Indirect physical impact to habitat (15 km). Risk of pollution (15 km). Risk of non-native species introduction(15 km).	Due to distance between ZoI and the subtidal sandbanks, the potential for risk of indirect physical impact (15 km), pollution (15 km), non-native species introduction (15 km) and geomorphological changes to this habitat from physical works in intertidal zone disrupting coastal sediment dynamics (15 km) are beyond the ZoI with no predicted LSEs . This pathway of effect is screened out.

Protected Site	Distance from Proposed Onshore Development	Feature	Proposed Onshore Development Aspect	Proposed Onshore Development Phase	Pressure	Determination of LSE
Lower River Spey – Spey Bay SAC	58.9 km	Alder woodland	OSA	C and D	Risk of impacts of water pollution (15 km) or introduction of non-native species (15 km) beyond Zol.	Due to the distance from site, it is deemed there are no predicted LSEs resulting from the Proposed Onshore Development relating to risk of water pollution or INNS.
		Coastal shingle vegetation	OSA	C and D	Risk of pollution. Risk of invasive non-native species.	Due to the distance from site, it is deemed there are no predicted LSEs resulting from the Proposed Onshore Development relating to risk of water pollution or INNS.
River Spey SAC	58.9 km	Otter	OnECC, OSA	C, O&M and D	Otters utilise the estuarine, coastal and freshwater network along with terrestrial areas for the ecological requirements (regionally variable depending on prey and habitat suitability). There is no predicted risk of direct/indirect impact of pollution/toxic contamination of otter, associated with the River Spey SAC, passing through Zol of works in MLWT marine zone or the freshwater network owing to the distance (beyond 50 km screening parameter). Thereby there being no risk of disk of direct mortality, loss of foraging habitat and underwater noise disturbance.	Otter is a mobile and far-ranging species (known to hold home ranges of up to 50 m or more). No predicted LSEs to otter owing to distance being beyond the screening parameter distance of 50 km.

Protected Site	Distance from Proposed Onshore Development	Feature	Proposed Onshore Development Aspect	Proposed Onshore Development Phase	Pressure	Determination of LSE
		FWPM	OSA	C, O&M and D	Risk of indirect impact of pollution/toxic contamination to host species (Atlantic salmon) passing through Zol of works in MLWT zone is screened out based on advice from NatureScot (and beyond 50 km advised screening distance). Risk of direct mortality and indirect risk of loss of host species foraging habitat and underwater noise/vibration disturbance are also screened out on same basis. Indirect risk of INNS introduction, indirectly impacting species habitat upstream of coast (long-term) screened out owing to distance beyond screening parameter (15 km).	No predicted LSEs owing to distance exceeding screening parameters and on advice from NatureScot relating to 'uncertainty on where migratory fish (Atlantic salmon, sea trout and sea and river lamprey) go within marine waters and connectivity back to natal rivers'. Thereby screening out for FWPM (as dependent on Atlantic salmon as a host species). Impacts on features, where relevant, will be assessed via Chapter 8: Ecology, Biodiversity and Nature Conservation of the Onshore EIAR, as per NatureScot advice.
		Atlantic salmon	OSA	C, O&M and D	Risk of indirect impact of pollution/toxic contamination to Atlantic salmon passing through Zol of works in MLWT zone is screened out based on advice from NatureScot (and beyond 50 km advised screening distance). Risk of direct mortality and indirect risk of loss of species foraging habitat and underwater noise/vibration disturbance are also screened out on same basis. Indirect risk of INNS introduction, indirectly impacting species habitat upstream of coast (long-term) screened out owing to distance beyond screening parameter (15 km).	No predicted LSEs owing to distance exceeding screening parameters and on advice from NatureScot relating to 'uncertainty on where migratory fish (Atlantic salmon, sea trout and sea and river lamprey) go within marine waters and connectivity back to natal rivers'. Impacts on features, where relevant, will be assessed via Chapter 8: Ecology, Biodiversity and Nature Conservation of the Onshore EIAR, as per NatureScot advice.

Protected Site	Distance from Proposed Onshore Development	Feature	Proposed Onshore Development Aspect	Proposed Onshore Development Phase	Pressure	Determination of LSE
		Sea lamprey	OSA	C, O&M and D	Risk of indirect impact of pollution/toxic contamination to sea lamprey passing through ZoI of works in MLWT zone is screened out based on advice from NatureScot (and beyond 50 km advised screening distance). Risk of direct mortality and indirect risk of loss of species foraging habitat and underwater noise/vibration disturbance are also screened out on same basis. Indirect risk of INNS introduction, indirectly impacting species habitat upstream of coast (long-term) screened out owing to distance beyond screening parameter (15 km).	No predicted LSEs owing to distance exceeding screening parameters and on advice from NatureScot relating to ‘uncertainty on where migratory fish (Atlantic salmon, sea trout and sea and river lamprey) go within marine waters and connectivity back to natal rivers’. Impacts on features, where relevant, will be assessed via Chapter 8: Ecology, Biodiversity and Nature Conservation of the Onshore EIAR, as per NatureScot advice.

For the Proposed Onshore Development in Combination with Other Projects and Plans

5.2.4 All sites and features where potential for LSE exists for non-avian features identified in **Table 5.4** will be considered in-combination at AA.

5.3 Characteristics of the Site, Zone of Influence and Potential Pathways of Effect – Ornithology

Development Site Baseline

Existing Data Sources

5.3.1 Section 8.4 of the Stromar Onshore Scoping Report (Orsted, 2023a) provides an account of data collated from NESBReC within 2 km of the Onshore Scoping Area. The desk study data identified 7387 records of protected, or otherwise notable bird species within 2 km of the Onshore Scoping Area within the last 15-years. This includes Schedule 1 species listed under the WCA, numerous red and amber listed BoCC species, and those defined within the SBL as species of principal importance for biodiversity conservation in Scotland.

5.3.2 The records include the following species which are qualifying species for the internationally designated sites within the Onshore Scoping Area and surrounding 2 km buffer:

- Atlantic puffin (*Fratercula arctica*) (hereafter referred to as 'puffin');
- Barnacle goose (Svalbard) (*Branta leucopsis*);
- Black-legged kittiwake (*Rissa tridactyla*) (hereafter referred to as 'kittiwake');
- Common eider (*Somateria mollissima*) (hereafter referred to as 'eider');
- Common goldeneye (*Bucephala clangula*) (hereafter referred to as 'goldeneye');
- Common guillemot (*Uria aalge*) (hereafter referred to as 'guillemot');
- Common tern (*Sterna hirundo*);
- Eurasian curlew (*Numenius arquata*) (hereafter referred to as 'curlew');
- European herring gull (*Larus argentatus*) (hereafter referred to as 'herring gull');
- European shag (*Gulosus aristotelis*) (hereafter referred to as 'shag');
- European teal (*Anas crecca*) (hereafter referred to as 'teal');
- Great black-backed gull (*Larus marinus*);
- Northern gannet (*Morus bassanus*) (hereafter referred to as 'gannet');
- Northern lapwing (*Vanellus vanellus*) (hereafter referred to as 'lapwing');
- Pink-footed goose (*Anser brachyrhynchus*);
- Purple sandpiper (*Calidris maritima*);
- Razorbill (*Alca torda*);
- Redshank (*Tringa totanus*);
- Ruddy turnstone (*Arenaria interpres*) (hereafter referred to as 'turnstone');

- Sandwich tern (*Thalasseus sandvicensis*); and
- Whooper swan (*Cygnus cygnus*).

Site Specific Surveys

- 5.3.3 In order to achieve two years of wintering bird data at the landfall locations, surveys commenced in October 2022 through to March 2023 at several potential locations, which would support a connection point at New Deer 2. The surveys are to resume in October 2023 at three remaining short-listed potential locations.
- 5.3.4 The methodology comprises ‘through the tide’ surveys, aiming for six hours at each location per month during October to March. One full count of site + 500 m buffer are undertaken every hour, including intertidal zone and inland fields which may be used for roosting.
- 5.3.5 Breeding season surveys were also undertaken at the three short-listed potential landfall locations during April to June 2023.
- 5.3.6 The following relevant species which are qualifying species for nearby internationally designated sites have been recorded during the non-breeding season intertidal surveys (October 2022 to March 2023) (**Table 5.5**) and the breeding season landfall surveys (April to June 2023) (**Table 5.6**).

Table 5.5: Occurrence and Abundance of Designated Features during the Site-Specific Surveys - Non-Breeding Season

Species	Monthly Occurrence	Abundance
Whooper swan	Recorded on a single occasion.	Single bird in January 2023.
Pink-footed goose	Recorded in four out of six months survey.	Peak count of 380 birds in December 2022.
Teal	Recorded in five out of six months survey.	Peak count of 50 birds in December 2022.
Eider	Recorded in six out of six months survey.	Peak count of 50 birds in November 2022. Offshore only.
Goldeneye	Recorded in four out of six months survey.	Peak count of 22 birds in January 2023.
Northern fulmar <i>Fulmarus glacialis</i> (hereafter referred to as ‘fulmar’)	Recorded in one out of six months survey.	Peak count of 25 birds in January 2023. Offshore only.
Gannet	Recorded in four out of six months survey.	Peak count of 100 birds in October 2022. Offshore only.
Shag	Recorded in six out of six months survey.	Peak count of 800 birds in December 2022. Offshore only.
Lapwing	Recorded on a single occasion.	Single bird in December 2022.
Redshank	Recorded in six out of six months survey.	Peak count of 75 birds in December 2022.

Species	Monthly Occurrence	Abundance
Common gull <i>Larus canus</i>	Recorded in six out of six months survey.	Peak count of 150 birds in February 2023.
Lesser black-backed gull <i>Larus fuscus</i>	Recorded in five out of six months survey.	Peak count of 20 birds in November 2022.
Herring gull	Recorded in six out of six months survey.	Peak count of 295 birds in December 2022.
Great black-backed gull	Recorded in six out of six months survey.	Peak count of 50 birds in January 2023.
Sandwich tern	Recorded in one out of six months survey.	Peak count of three birds in March 2023. Offshore only.
Guillemot	Recorded in five out of six months survey.	Peak count of 80 birds in November 2022. Offshore only.
Razorbill	Recorded in four out of six months survey.	Peak count of 40 birds in March 2023. Offshore only.
Puffin	Recorded in two out of six months survey.	Peak count of two birds in November 2022. Offshore only.

Table 5.6: Occurrence and Abundance of Designated Features during the Site-Specific Surveys - Breeding Season

Species	Monthly Occurrence	Abundance
Shag	Recorded in one out of three months survey	Peak count of five birds in June 2023. Offshore only.
Cormorant <i>Phalacrocorax carbo</i>	Recorded in one out of three months survey	Peak count of seven birds in June 2023. Offshore only.
Redshank	Recorded in two out of three months survey	Peak count of six birds in June 2023.
Common gull	Recorded in one out of three months survey	Peak count of 25 birds in June 2023.
Herring gull	Recorded in three out of three months survey	Peak count of 52 birds in April 2023.
Great black-backed gull	Recorded in one out of three months survey	Peak count of nine birds in April 2023.

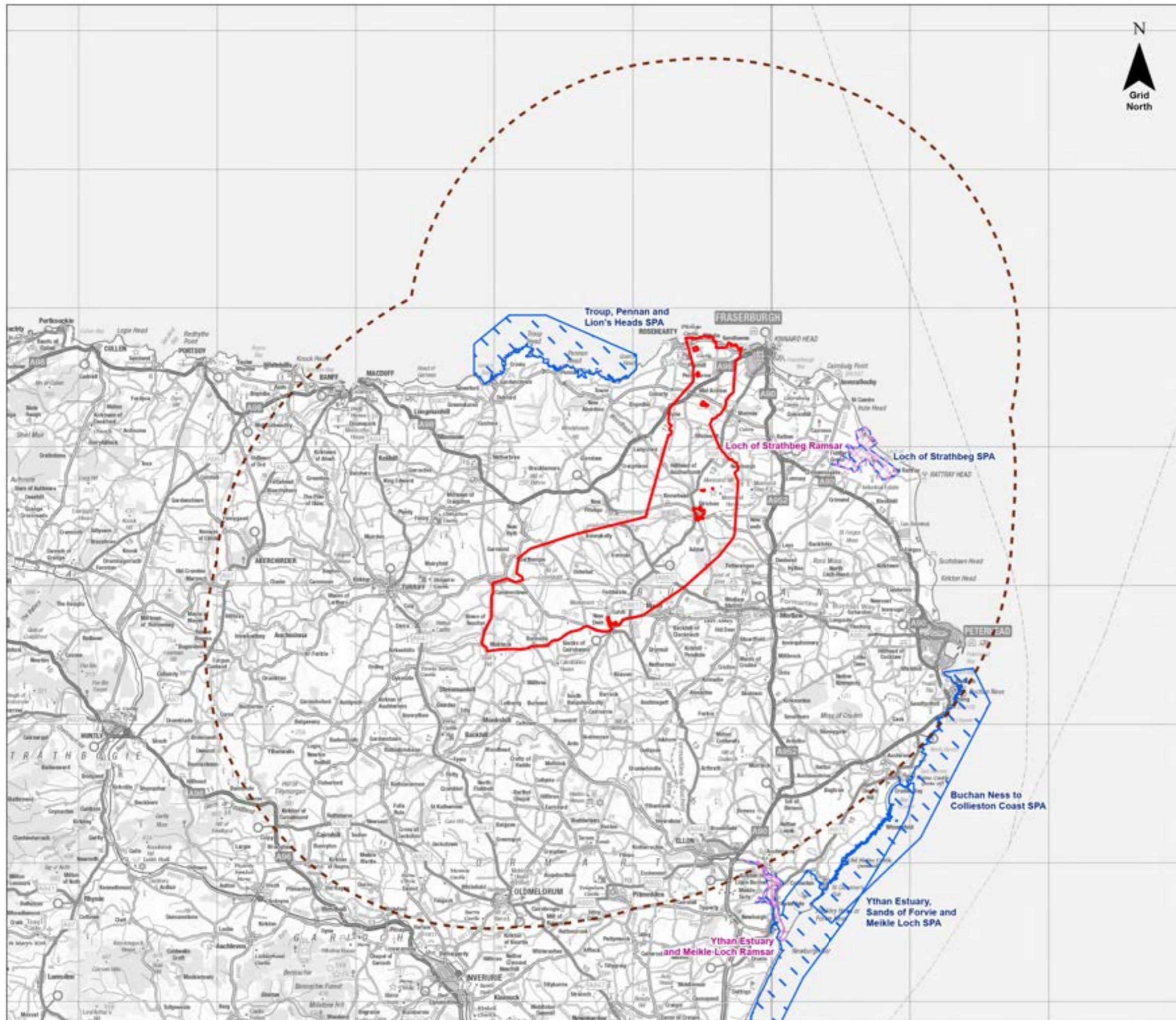
International and European Sites of the National Network

Baseline Information

5.3.7 A breakdown of European and International sites designated for ornithological nature conservation interest is provided in **Table 5.7**, with locations illustrated in **Figure 5.2**.

Stromar Offshore Wind Farm
Figure 5.2
Statutory Designated Sites
of Ornithological Interest within 20 km

- Legend**
- Onshore Scoping Area
 - Onshore Scoping Area 20 km Buffer
 - Ramsar
 - Special Protection Area (SPA)



Coordinate System: British National Grid

Scale @ A3 : 1:275,000

0 2.5 5 Kilometres

0 2.75 5.5 11 Miles

Rev	Description	Date
00	First Draft	19/12/2023
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Doc. Report : HRA Report
 Doc. Title : Designations for Ornithological Nature Conservation Value
 Doc. No : 404.V64554.00001.0076.1
 Doc. No of Pages : 1
 Created by : SH
 Checked by : JK
 Approved by : MF

STROMAR

Table 5.7: European Sites Designated for Ornithological Nature Conservation Purposes within Foraging Range of Relevant Species of the OSA

Site	Qualifying Feature(s) and Most Recent Condition Assessment Result	Distance and Orientation from OSA and Associated Connectivity
<p>Troup, Pennan and Lion's Heads SPA</p>	<p>The site qualifies as an SPA by regularly supporting over 20,000 individual breeding seabirds and internationally important breeding populations of:</p> <ul style="list-style-type: none"> • Kittiwake (unfavourable, no change); • Guillemot (unfavourable, declining); • Fulmar (unfavourable, no change); • Herring gull (unfavourable, declining); and • Razorbill (unfavourable, declining). 	<p>Located approximately 3.66 km west at its nearest point from the OSA.</p> <p>Herring gull is potentially ecologically functionally linked/within potential Zone of Influence (Zoi). All other species are marine species which do not normally occur onshore. These are assessed in the offshore HRA (Orsted, 2023c).</p>
<p>Loch of Strathbeg SPA and Ramsar</p>	<p>The site qualifies as an SPA for regularly supporting populations of European importance of the following Annex 1 species:</p> <ul style="list-style-type: none"> • Whooper swan (favourable, maintained); • Barnacle goose (Svalbard) (unfavourable, declining); and • Sandwich tern (unfavourable, no change). <p>It also supports populations of European importance of the following migratory species:</p> <ul style="list-style-type: none"> • Pink-footed goose (favourable, maintained); and • Greylag goose <i>Anser anser</i> (unfavourable, no change). <p>Furthermore, it is known regularly support in excess of 20,000 individual waterfowl, including nationally important populations of:</p> <ul style="list-style-type: none"> • Teal (favourable, maintained); and • Goldeneye (not assessed). <p>The following additional species are listed as Ramsar species:</p> <ul style="list-style-type: none"> • Ruff <i>Calidris pugnax</i> (not assessed); • Greenshank (not assessed); and • Smew (not assessed). 	<p>Located approximately 6.76 km east at its nearest point from the OSA.</p> <p>The following species are potentially ecologically functionally linked/within potential Zoi:</p> <ul style="list-style-type: none"> • Barnacle goose; • Sandwich tern; • Pink-footed goose; and • Greylag goose. <p>All other species are not considered to be potentially ecologically functionally linked/within potential Zoi due to distance (refer to foraging ranges in Table 5.9).</p>

Site	Qualifying Feature(s) and Most Recent Condition Assessment Result	Distance and Orientation from OSA and Associated Connectivity
<p>Buchan Ness to Collieston Coast SPA</p>	<p>The site qualifies as an SPA by regularly supporting over 20,000 individual breeding seabirds and internationally important breeding populations of:</p> <ul style="list-style-type: none"> • Kittiwake (unfavourable, no change); • Guillemot (favourable, maintained); • Fulmar (unfavourable, declining); • Herring gull (unfavourable, no change); and • Shag (unfavourable, no change). 	<p>Located approximately 18.01 km southeast at its nearest point from the OSA.</p> <p>Herring gull is potentially ecologically functionally linked/within Zol. All other species are marine species which do not normally occur onshore. These are assessed in the offshore HRA (Orsted, 2023c).</p>
<p>Ythan estuary, Sands of Forvie and Meikle Loch SPA and Ramsar</p>	<p>The site qualifies as an SPA for regularly supporting populations of European importance of the following Annex 1 species:</p> <ul style="list-style-type: none"> • Sandwich tern (favourable, maintained); • Common tern (unfavourable, no change); and • Little tern <i>Sternula albifrons</i> (favourable, maintained). <p>It also supports populations of European importance of the following migratory species:</p> <ul style="list-style-type: none"> • Pink-footed goose (favourable, maintained). <p>Furthermore it is known regularly support in excess of 20,000 individual waterfowl, including nationally important populations of:</p> <ul style="list-style-type: none"> • Pink-footed goose (favourable, maintained); • Eider (favourable, declining); • Redshank (favourable, maintained); and • Lapwing (favourable, maintained). 	<p>Located approximately 19.16 km southeast at its nearest point from the OSA.</p> <p>The following species are potentially ecologically functionally linked/within potential Zol:</p> <ul style="list-style-type: none"> • Sandwich tern; • Common tern; • Pink-footed goose; • Greylag goose; and • Eider <p>All other species are not considered to be potentially ecologically functionally linked/within potential Zol due to distance (refer to foraging ranges in Table 5.9).</p>
<p>Tips of Corsemaul and Tom Mor SPA</p>	<p>The site qualifies as an SPA by regularly supporting a breeding population of European importance of the following regularly occurring migratory species:</p> <ul style="list-style-type: none"> • Common gull (unfavourable, declining). 	<p>Located approximately 47.6 km west at its nearest point from the OSA.</p> <p>Common gull is potentially ecologically functionally linked/within potential Zol.</p>

Site	Qualifying Feature(s) and Most Recent Condition Assessment Result	Distance and Orientation from OSA and Associated Connectivity
<p>Fowlsheugh SPA</p>	<p>The site qualifies as an SPA for regularly supporting in excess of 20,000 seabirds. It also supports populations of European importance of the following migratory species:</p> <ul style="list-style-type: none"> • Fulmar (favourable, maintained); • Guillemot (favourable, maintained); • Herring gull (unfavourable, declining); • Kittiwake (favourable, maintained); and • Razorbill (favourable, maintained). 	<p>Located approximately 62.3 km south at its nearest point from the OSA.</p> <p>Herring gull is potentially ecologically functionally linked/within potential ZoI.</p> <p>All other species are marine species which do not normally occur onshore. These are assessed in the offshore HRA (Orsted, 2023c).</p>
<p>Forth Islands SPA</p>	<p>The site qualifies as an SPA for regularly supporting populations of European importance of the following Annex 1 species:</p> <ul style="list-style-type: none"> • Arctic tern <i>Sterna paradisaea</i> (favourable, declining); • Common tern (unfavourable, declining); • Roseate tern <i>Sterna dougallii</i> (unfavourable, declining); and • Sandwich tern (unfavourable, declining). <p>It also supports populations of European importance of the following migratory species:</p> <ul style="list-style-type: none"> • Gannet (favourable, maintained); • Shag (unfavourable, declining); • Lesser black-backed gull (favourable, maintained); and • Puffin (favourable, declining). <p>Furthermore, it is known to regularly support in excess of 20,000 individual seabirds, including nationally important populations of:</p> <ul style="list-style-type: none"> • Cormorant (unfavourable, declining); • Guillemot (favourable, maintained); • Herring gull (favourable, maintained); • Kittiwake (unfavourable, declining); and • Razorbill (favourable, maintained). 	<p>Located approximately 144.7 km south at its nearest point from the OSA.</p> <p>Lesser black-backed gull is potentially ecologically functionally linked/within potential Zone of Influence.</p> <p>All other species are marine species which do not normally occur onshore. These are assessed in the offshore HRA (Orsted, 2023c).</p>

Site	Qualifying Feature(s) and Most Recent Condition Assessment Result	Distance and Orientation from OSA and Associated Connectivity
Northumberland Marine SPA	<p>The site qualifies as an SPA for regularly supporting in excess of 20,000 seabirds. It also supports populations of European importance of the following migratory species:</p> <ul style="list-style-type: none"> • Fulmar (condition assessment not available); • Kittiwake (condition assessment not available); • Lesser black-backed gull (condition assessment not available); and • Puffin (condition assessment not available). 	<p>Located approximately 195.7 km south at its nearest point from the OSA.</p> <p>Lesser black-backed gull is potentially ecologically functionally linked/within potential Zone of Influence.</p> <p>All other species are marine species which do not normally occur onshore. These are assessed in the offshore HRA (Orsted, 2023c).</p>

Conservation Objectives

5.3.8 For the sites listed in **Table 5.7**, the following conservation objectives apply:

- To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and
- To ensure for the qualifying species that the following are maintained in the long term:
 - Population of the species as a viable component of the site;
 - Distribution of the species within site;
 - Distribution and extent of habitats supporting the species;
 - Structure, function and supporting processes of habitats supporting the species; and
 - No significant disturbance of the species.

Current Pressures

5.3.9 The current pressures and associated management for designated sites are detailed in **Table 5.8**. The following information is replicated from the relevant Natura 2000 Standard Data Forms (JNCC) or from the information on the NatureScot SiteLink website.

Table 5.8: Current Pressures and Associated Management for Designated Sites

Site	Current Pressures	Associated Management
Troup Pennan and Lions Head SPA	<ul style="list-style-type: none"> • Renewable abiotic energy use: medium rank, inside and outside site; • Other ecosystem modifications; high rank, inside and outside site; • Changes in biotic conditions: medium rank, inside and outside site; • Fishing and harvesting aquatic resources: high rank, inside site; • Marine water pollution: medium rank, inside and outside site; • Invasive non-native species: low rank, inside and outside site; and • Interspecific faunal relations: low rank, inside site. 	NatureScot is responsible for management.
Loch of Strathbeg SPA & Ramsar	<ul style="list-style-type: none"> • Other ecosystem modifications; high rank, inside and outside site; • Invasive non-native species: high rank, inside and outside site; • Interspecific faunal relations: high rank, inside site; • Pollution to surface waters (limnic & terrestrial, marine & brackish): medium rank, inside and outside site; • Utility and service lines: medium rank, inside and outside site; • Changes in abiotic conditions: medium rank, inside and outside site; • Changes in biotic conditions: high rank, inside and outside site; • Pollution to groundwater (point sources and diffuse sources): medium rank, inside and outside site; • Fishing and harvesting aquatic resources: medium rank, inside site; • Renewable abiotic energy use: low rank, inside and outside site; and • Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g., due to fishing gear), etc.): medium rank, inside site. 	Loch of Strathbeg SPA & RAMSAR site is partly managed by the RSPB for nature conservation with a management agreement and site management statement/plan implemented. Under RSPB management, fields close to the loch at Savoch have been returned to pasture and flooded for part of the year. Wildfowling has ceased to take place from much of the dunes at the back of the Loch.

Site	Current Pressures	Associated Management
Buchan Ness to Collieston Coast SPA	<ul style="list-style-type: none"> • Other ecosystem modifications; medium rank, inside and outside site; • Renewable abiotic energy use: medium rank, inside and outside site; • Outdoor sports and leisure activities, recreational activities: low rank, inside site; • Invasive non-native species: medium rank, inside and outside site; • Changes in biotic conditions: medium rank, inside and outside site; • Fishing and harvesting aquatic resources: medium rank, inside site; • Interspecific faunal relations: medium rank, inside site; • Marine water pollution: medium rank, inside and outside site; and • Inundation (natural processes): low rank, inside site. 	NatureScot is responsible for management.

Site	Current Pressures	Associated Management
<p>Ythan Estuary, Sands of Forvie, & Meikle Loch SPA and Ramsar</p>	<ul style="list-style-type: none"> • Inundation (natural processes): low rank, inside and outside site; • Utility and service lines: medium rank, inside and outside site; • Marine water pollution: medium rank, inside and outside site; • Invasive non-native species: high rank, inside and outside site; • Forest and Plantation management & use: low rank, outside site; • Outdoor sports and leisure activities, recreational activities: medium rank, inside and outside site; • Pollution to surface waters (limnic & terrestrial, marine & brackish: medium rank, inside and outside site; • Renewable abiotic energy use: high rank, inside and outside site; • Changes in biotic conditions: medium rank, inside and outside site; • Changes in abiotic conditions: medium rank, inside and outside site; • Marine and Freshwater Aquaculture: low rank, inside and outside site; • Hunting, fishing or collecting activities not referred to above: medium rank, inside and outside site; • Airports, flightpaths: medium rank, inside and outside site; • Interspecific faunal relations: medium rank, inside site; • Shipping lanes, ports, marine constructions: high rank, inside and outside site; • Fishing and harvesting aquatic resources: high rank, inside and outside site; • Discharges: medium rank, inside and outside site; • Other ecosystem modifications: high rank, inside and outside site; and • Other human intrusions and disturbances: medium rank, inside and outside site. 	<p>The site is primarily owned and managed by NatureScot as a National Nature Reserve (NNR) and is very popular for recreation, particularly for walkers and birdwatchers, with an estimated minimum 15,000 visitor days per year. The estuary is a popular place for both shore and boat fishing. The estuary is available for public wildfowling from 01 September until 20 February annually. The estuary is also used by wind-surfers and bait-diggers.</p>

Site	Current Pressures	Associated Management
Tips of Corsemaul and Tom Mor	<ul style="list-style-type: none"> • Invasive non-native species: high rank, inside and outside site; • Changes in biotic conditions: medium rank, inside and outside site; and • Renewable abiotic energy use: medium rank, inside and outside site. 	The Tips of Corsemaul and Tom Mor form part of an area of moorland which has and continues to be managed for a combination of traditional grouse moor and sheep grazing. The heather moorland within and surrounding the SSSI is actively managed for grouse by rotational heather burning. One owner currently harvests a small number of common gull eggs under licence. Over the last 30-40 years, several small plantations (each less than 10 ha) have been established around the margins of the moorland and about 50% of the moorland is within 2 km of forestry. The Tips of Corsemaul and Tom Mor SSSI are probably seldom used for informal recreation, at any time of year.
Fowlsheugh SPA	<ul style="list-style-type: none"> • Invasive non-native species: low rank, inside and outside site; • Other ecosystem modifications: high rank, inside and outside site; • Interspecific faunal relations: low rank, inside site; • Changes in biotic conditions: medium rank, inside and outside site; • Fishing and harvesting aquatic resources: high rank, inside site; • Renewable abiotic energy use: medium rank, inside and outside site; and • Marine water pollution: medium rank, inside and outside site. 	The site has been owned and managed as a reserve by the RSPB since 1976. A reserve management plan, drawn-up in agreement with NatureScot, is reviewed every five years. The main purpose of the plan is to safeguard the bird colony and to provide for visitor interpretation and safety, whilst preventing disturbance to the birds on the cliffs below. Some proposals for the management of the cliff top grassland are also included.

Site	Current Pressures	Associated Management
Forth Islands SPA	<ul style="list-style-type: none"> • Inundation (natural processes): low rank, inside site; • Changes in biotic conditions: medium rank, inside and outside site; • Marine water pollution: low rank, inside and outside site; • Renewable abiotic energy use: medium rank, inside and outside site; • Invasive non-native species: high rank, inside and outside site; • Changes in abiotic conditions: high rank, inside and outside site; • Outdoor sports and leisure activities, recreational activities: medium rank, inside site; • Other ecosystem modifications: high rank, inside and outside site; • Interspecific faunal relations: high rank, inside site; and • Fishing and harvesting aquatic resources: high rank, inside site. 	<p>Fidra is currently part of the RSPB's Forth Islands Reserve, which also includes Eyebroughy, a rocky promontory accessible from the mainland at low tide, 2 km to the west of Fidra, which is part of the Firth of Forth SSSI. A tree mallow removal programme is the only land management currently being carried out on the Forth Islands. This is mainly focused on Craigleith, but some work is also done on Fidra, which has a less serious problem with the invasive plant. The work on Craigleith is carried out according to a management plan written by the Craigleith Management Group. Between 2007 & 2012 Aberdeen University monitored the tree mallow removal on the island on behalf of SNH.</p>
Northumberland Marine SPA	<ul style="list-style-type: none"> • Outdoor sports and leisure activities, recreational activities: high rank, inside site; and • Marine and Freshwater Aquaculture: low rank, inside site. 	<p>The following bodies are responsible for management: Natural England, Marine Management Organisation, Northumberland Inshore Fisheries Conservation Authority, Local Authorities, Trinity House, Crown Estate, National Trust, RSPB, Environment Agency, Northumbria Water.</p>

Potential Pathways of Effect

For the Proposed Onshore Development Alone

5.3.10 Bird species are highly mobile so both the potential Zol for each pressure and the ranging behaviour of the species (and their prey) are relevant to screening. The bird species likely to interact with the Proposed Onshore Development can be grouped into a series of categories for the purposes of this screening exercise. This categorisation is based on biological relationships related to phenology, feeding, habitat use and migratory pathways. The categories are:

- Breeding seabirds in the breeding season that occur onshore (e.g., herring gull at the Troup, Pennan and Lion's Heads SPA);
- Breeding seabirds in the non-breeding season that occur onshore (e.g., herring gull at the Troup, Pennan and Lion's Heads SPA);
- Non-breeding seabirds (e.g., herring gull); and
- Migratory waterbirds.

5.3.11 The spatial criteria applied for each of the bird categories are:

- Breeding seabirds in the breeding season – for relevant breeding seabirds where they potentially occur onshore (i.e., Woodward *et al.*, 2019, mean maximum foraging range plus 1SD as recommended by NatureScot (2023));
- Non-breeding seabirds – in relation to wintering gulls that breed in sites designated as SPA/Ramsar site in areas of the UK that are distant from the Proposed Onshore Development have some potential to interact with the Proposed Onshore Development outside of the breeding season, as recommended by NatureScot (2023), the foraging ranges in Woodward *et al.*, 2019, mean maximum foraging range plus 1SD apply; and
- Migratory waterbirds and seabirds that are designated features of SPA/Ramsar site in areas of the UK that are distant from the Proposed Onshore Development have some potential to interact with the Proposed Onshore Development during the non-breeding season. Information has been gleaned from relevant data sources to infer potential connectivity, namely SNH (2016).

5.3.12 Screening for birds therefore incorporates more steps than for the other feature groups and has been undertaken in two discrete stages. Step 1 Screening for ornithology will use a predefined set of screening criteria to identify SPAs and Ramsar sites with relevant ornithological features which have potential connectivity to the Proposed Onshore Development. Potential connectivity does not necessarily equate to a potential LSE, with that determined in Step 2 Screening. Once potential connectivity has been determined with relevant SPAs and Ramsar sites and associated relevant features, those sites and features will subsequently be progressed to the determination of potential LSE. The specific ranges used for screening are provided in **Table 5.9**.

Table 5.9: Foraging Ranges for Relevant Species used for Onshore Screening

Species	Reference for Foraging Range	Foraging Range for Screening
Barnacle goose (Svalbard)	SNH 2016	15-25 km
Common greenshank <i>Tringa nebularia</i> (hereafter referred to as 'greenshank')	None	SPA/Ramsar boundary only
Common gull	Woodward <i>et al.</i> 2019	50 km
Common tern	Woodward <i>et al.</i> 2019	26.9 km (18.0±8.9)
Common eider	Woodward <i>et al.</i> 2019	21.5 km
Cormorant	Woodward <i>et al.</i> 2019	33.9 km (25.6±8.3)
Goldeneye	None	SPA/Ramsar boundary only
Greylag goose	SNH 2016	15-20 km
Great black-backed gull	Woodward <i>et al.</i> 2019	73 km
Herring gull	Woodward <i>et al.</i> 2019	85.6 km (58.8±26.8)
Lapwing	None	SPA/Ramsar boundary only
Lesser black-backed gull	Woodward <i>et al.</i> 2019	236.0 km (127±109)
Little tern	Woodward <i>et al.</i> 2019	5 km
Pink-footed goose	SNH 2016	15-20 km
Redshank	None	SPA/Ramsar boundary only
Roseate tern	Woodward <i>et al.</i> 2019	23.2 km (12.6±10.6)
Ruff	None	SPA/Ramsar boundary only
Sandwich tern	Woodward <i>et al.</i> 2019	57.5 km (34.3±23.2)
Shag	Woodward <i>et al.</i> 2019	23.7 km (13.2±10.5)
Smew <i>Mergellus albellus</i>	None	SPA/Ramsar boundary only
Teal	None	SPA/Ramsar boundary only
Whooper swan	SNH 2016	5 km

Identification of Potential Connectivity

5.3.13 **Table 5.10** lists the eight SPAs, two Ramsars and 17 associated features that have been identified to pose potential connectivity with the OnECC. A full list of protected sites and features is provided in **Table 5.7**.

Table 5.10: European Sites and Relevant Qualifying Features to be Taken Forward for Determination of LSE for Onshore Ornithological Features

European Site	Relevant Ornithological Features	Proposed Onshore Development Aspect	Proposed Onshore Development Phase(s)
Buchan Ness to Collieston Coast SPA.	<ul style="list-style-type: none"> Herring gull. 	OnECC	C, O&M and D
Forth Islands SPA.	<ul style="list-style-type: none"> Lesser black-backed gull. 	OnECC	C, O&M and D
Fowlsheugh SPA.	<ul style="list-style-type: none"> Herring gull. 	OnECC	C, O&M and D
Loch of Strathbeg SPA and Ramsar.	<ul style="list-style-type: none"> Sandwich tern; Whooper swan; Pink-footed goose; Greylag goose; Barnacle goose (Svalbard); Teal; and Goldeneye. 	OnECC	C, O&M and D
Northumberland Marine SPA	<ul style="list-style-type: none"> Lesser black-backed gull. 	OnECC	C, O&M and D
Tips of Corsemaul and Tom Mor SPA.	<ul style="list-style-type: none"> Common gull . 	OnECC	C, O&M and D
Troup, Pennan and Lion`s Heads SPA.	<ul style="list-style-type: none"> Herring gull. 	OnECC	C, O&M and D
Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ramsar.	<ul style="list-style-type: none"> Sandwich tern; Common tern; Pink-footed goose; and Eider. 	OnECC	C, O&M and D

For the Proposed Onshore Development in Combination with Other Projects and Plans

5.3.14 All sites and features where potential for LSE exists for avian features identified in **Table 5.10** will be considered in-combination at AA.

Potential Pressures and Screening Parameters

For the Proposed Onshore Development Alone

5.3.15 This Section provides a list of potential pressures on onshore ornithological features that may result from the Proposed Onshore Development. These are the pressures that must be taken into account when determining potential for LSE on the European Sites and qualifying features identified in **Table 5.7**.

5.3.16 The potential pressures set out in **Table 5.11**: are to be taken forward to AA of the HRA screening process, with the exception of collision risk and toxic contamination.

- 5.3.17 In terms of onshore collision risk (i.e., collision with static above ground infrastructure) it is considered that there is negligible potential for this and therefore no potential for LSE. All cabling will be underground.
- 5.3.18 Impacts resulting from artificial light at landfall are expected to be minimal and insufficient to result in LSE. Although there is some evidence that Manx shearwater and European storm-petrel can be impacted by artificial light, these are offshore species which infrequently occur inshore. Neither species has been recorded during land-based site-specific surveys to date.
- 5.3.19 The justification for screening out assessment of potential toxic contamination at the AA stage is set out in Section 6.4 of the Offshore Screening Report (Orsted, 2023c) and is also considered relevant to the Onshore HRA Screening assessment for works in the intertidal zone. Pollution events are considered unlikely in the marine environment. Should an event occur, effects will be temporary, reversible and limited in spatial extent. The Proposed Onshore Development will also follow best practice guidance implemented by OSPAR, MARPOL and IMO. It is note that potential LSEs arising from accidental pollution/toxic contamination in the terrestrial/ freshwater environment is considered herein.
- 5.3.20 As part of recent Scoping Opinions for projects in Scottish waters, the Scottish Ministers have agreed that this impact should be screened out (see, for example, Marine Scotland, 2022). In addition, a ruling by the Court of Justice on 15 June 2023 (Eco Advocacy, Case C-721/21) further supports this approach, and determined that features of a project (particularly with regard to contaminants with the potential to have harmful effects on a European site), which have been incorporated into a plan or project as standard features, can be taken into account at screening stage.

Table 5.11: Potential Pressures and Screening Parameters for Onshore and Intertidal Ornithology

Potential Pressure	Proposed Onshore Development Aspect	Proposed Onshore Development Phase	Pressure Detail	Screening Parameter	Justification
Habitat loss/gain	OnECC	O&M	Habitat loss/gain associated with the presence of onshore buried cables and above ground infrastructure. This is a permanent impact which occurs during the construction phase but is assessed during the O&M phase and is restricted to the footprint of physical structures.	OSA	Footprint of the Proposed Onshore Development only
Direct temporary habitat loss/disturbance	OnECC	C, O&M and D	The impact of construction/decommissioning activities and activities associated with the maintenance of onshore above ground infrastructure may result in direct disturbance of birds from important feeding and roosting areas. Impact could occur within the OnECC and an associated buffer and could occur throughout the lifetime of Proposed Onshore Development.	OSA	Footprint of the Proposed Onshore Development plus a 500 m buffer
Indirect temporary habitat loss/disturbance	OnECC	C, O&M and D	The impact of construction activities such as increased vessel activity at landfall and underwater/above water noise may result in disturbance or displacement of prey from important bird feeding areas. Impact could occur within the OnECC at landfall and an associated 15 km buffer based on maximum design assumptions for vessels associated with the Project. Impacts could occur throughout the lifetime of the Project.	OSA	OSA at the landfall plus 15 km buffer associated with tidal extent
Collision	OnECC	O&M	This pressure relates to the mortality arising from birds colliding with onshore above ground infrastructure.	OSA	Footprint of the Proposed Onshore Development only
Displacement	OnECC	O&M	The impact of physical displacement from an area due to the physical presence of above ground infrastructure during the operational phase of the development may result in effective habitat loss and reduction in species survival rates and fitness. Impact could occur within the OnECC and an associated buffer during the operational phase of the Proposed Onshore Development.	Species-specific	Footprint of the Proposed Onshore Development (OnECC) and species-specific buffers based on Goodship and Furness (2022).

Potential Pressure	Proposed Onshore Development Aspect	Proposed Onshore Development Phase	Pressure Detail	Screening Parameter	Justification
Accidental pollution/toxic contamination	OnECC	C, O&M and D	The impact of pollution including accidental spills and contaminant releases associated with maintenance which may lead to direct mortality of birds or a reduction in prey availability.	OSA	Footprint of the Proposed Onshore Development plus a 15 km buffer

For the Proposed Onshore Development in Combination with Other Projects and Plans

- 5.3.21 All of the potential pressures set out in **Table 5.11** will be assessed in-combination with other projects and plans. As stated in **Section 3.2**, a long list of all potential plans and projects considered relevant to the Proposed Onshore Development will be developed. At the time of screening, this long list is not available. The process will commence with an in-combination assessment with the Proposed Offshore Development, and replication for all other projects considered relevant (e.g. those listed in **Section 3.2**).

Determination of Potential for LSE

- 5.3.22 Based on the criterion outlined above, the SPAs and Ramsar sites for which potential connectivity with the OSA cannot be ruled out have been taken forward for determination of potential LSE. The process has been informed by published guidance and literature on species sensitivities and behaviour (i.e., SNH 2016, Woodward *et al.*, 2019 and Goodship and Furness, 2022).

5.4 Assessment of LSE - Ornithological Features

- 5.4.1 **Table 5.12** presents the consideration of potential LSE in relation to the OnECC for relevant qualifying interest features of the SPAs identified for potential connectivity in **Table 5.10**. A number of factors are taken into account in when determining the potential for LSE. These include site specific foraging range data and the vulnerability of each species to pressures associated with the OnECC. These determinations are made in the absence of mitigation measures.
- 5.4.2 This exercise has been undertaken prior to completion of baseline surveys within the OnECC. This aspect of the screening exercise will be revisited in the RIAA once the full two-year baseline dataset is available to ensure no further designated sites and associated features require consideration in the RIAA. Within **Table 5.12**, where an LSE cannot be ruled out for a given pressure, a ✓ symbol is included. Where an LSE has been ruled out a X symbol is included. Supporting text for a-f are provided at the end of **Table 5.12**.

Table 5.12: LSE Matrix for SPAs with Onshore Ornithological Features: OnECC

European Site and Relevant Qualifying Features	Habitat Loss/Gain	Direct Temporary Habitat Loss/Disturbance			Indirect Temporary Habitat Loss/Disturbance			Displacement
	O&M	C	O&M	D	C	O&M	D	O&M
Buchan Ness to Collieston Coast SPA								
Herring gull	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)
Forth Islands SPA								
Lesser black-backed gull	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)
Fowlsheugh SPA								
Herring gull	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)
Northumberland Marine SPA								
Lesser black-backed gull	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)
Tips of Corsemaul and Tom Mor SPA								
Common gull	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)
Troup, Pennan and Lion`s Heads SPA								
Herring gull	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)
Loch of Strathbeg SPA and Ramsar								
Barnacle goose (Svalbard)	X (b)	✓ (e)	X (c)	✓ (e)	X (f)	X (f)	X (f)	X (d)
Sandwich tern	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)
Pink-footed goose	X (b)	✓	X (c)	✓	X (f)	X (f)	X (f)	✓

European Site and Relevant Qualifying Features	Habitat Loss/Gain	Direct Temporary Habitat Loss/Disturbance			Indirect Temporary Habitat Loss/Disturbance			Displacement
	O&M	C	O&M	D	C	O&M	D	O&M
Greylag goose	X (b)	✓	X (c)	✓	X (f)	X (f)	X (f)	✓
Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ramsar								
Sandwich tern	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)
Common tern	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)	X (a)
Pink-footed goose	X (b)	✓	X (c)	✓	X (f)	X (f)	X (f)	✓
Eider	X (b)	✓	X (c)	✓	✓	X (c)	✓	X (d)
Key to Rationale for Screening								
<p>a) Potential for LSE with regards to direct and indirect temporary habitat loss/disturbance, underwater noise, above water noise and suspended sediments will only apply if a feature has a vulnerability to ‘displacement associated with vessels/helicopters’ of Moderate or higher and/or a Low habitat flexibility. This is using the vulnerability scores presented in Wade et al. (2016), which applies to offshore wind farms, and is applied here for the intertidal zone.</p> <p>b) Potential for LSE with regards to direct permanent habitat loss/gain is restricted to the footprint of permanent physical structures, and will only apply if a feature has a vulnerability to permanent displacement from the relevant European site.</p> <p>c) Potential for LSE with regards to direct and indirect temporary habitat loss/disturbance is restricted to the Construction and Decommissioning phases only.</p> <p>d) Potential for LSE with regards to displacement is restricted to the Construction and Decommissioning phases only.</p> <p>e) Currently screened in, however none have been recorded during baseline surveys to date, therefore this feature may be screened out following completion of surveys.</p> <p>f) Potential for LSE with regards to indirect temporary habitat loss/disturbance will only apply to features which occur predominantly in the intertidal zone (i.e., at landfall).</p>								

5.4.3 A total of five features from two SPAs and two Ramsar sites, consisting of four species have been identified as having potential LSEs associated with the OnECC. A detailed summary of all LSEs is shown in **Table 5.13**. The HRA screening considered a number of pressures and identified LSEs relating to particular pressures only. **Table 5.13** sets out the relevant pressures, Proposed Onshore Development phase and Proposed Onshore Development aspect associated with each LSE. The conclusion on the potential for LSE confirms those sites and features that will progress forward for assessment.

Table 5.13: Description of Potential for LSEs and Associated Pressures

Protected Site	Distance from Proposed Onshore Development	Feature	Proposed Onshore Development Aspect	Proposed Onshore Development Phase	Pressures for which a potential LSE cannot be ruled out
Loch of Strathbeg SPA and Ramsar	OnECC: 7 km	Pink-footed goose	OnECC	C, D	LSE for direct temporary habitat loss/disturbance
				O&M	LSE for displacement
		Greylag goose	OnECC	C, D	LSE for direct temporary habitat loss/disturbance
				O&M	LSE for displacement
		Barnacle goose	OnECC	C, D	LSE for direct temporary habitat loss/disturbance
		Ythan estuary, Sands of Forvie and Meikle Loch SPA and Ramsar	OnECC: 18 km	Pink-footed goose	OnECC
O&M	LSE for displacement				
Eider	OnECC			C, D	LSE for direct temporary habitat loss/disturbance
					LSE for indirect temporary habitat loss/disturbance

6 Screening Conclusions

6.1 Introduction

6.1.1 The application of the approach to screening provides a clear list of protected sites, features, and pressures where potential for connectivity exists. For the Stromar Proposed Onshore Development relevant to non-avian and ornithology, a two-step approach to screening enables the multiple species to be fully considered and takes account of factors such as phenology, feeding, habitat use, home ranges and migratory pathways. The results from the shadow HRA Screening assessment are summarised in **Sections 6.2** and **6.3**.

6.2 Project Alone

Onshore Non-Avian Ecology

6.2.1 Two protected sites and three features with potential for connectivity have been identified for onshore non-avian ecology, with the closest such site (the Turclossie Moss SAC) located some 2.4 km from the OSA. The conclusion of potential for LSE for the following sites/features for the Project alone include:

- Turclossie Moss SAC (active raised bog; degraded raised bog); and
- Moray Firth SAC (bottlenose dolphin);

6.2.2 It is noted that update design detail may act to screen out sites/features prior to the Appropriate Assessment commencing.

Onshore and Intertidal Ornithology

6.2.3 Two protected sites and four features with potential for connectivity have been identified for onshore ornithology, with the closest such site (the Loch of Strathbeg SPA and Ramsar) located some 7 km from the OSA. Both sites will subsequently be taken forward for further assessment in the RIAA.

- Loch of Strathbeg SPA and Ramsar (Barnacle goose (Svalbard), pink-footed goose and greylag goose); and
- Ythan Estuary, Sands of Forvie, and Meikle Loch SPA and Ramsar (pink-footed goose and eider).

6.2.4 It is noted that update design detail may act to screen out sites/features prior to the Appropriate Assessment commencing.

6.3 In-Combination

6.3.1 Where the screening for the Project alone has identified a potential for LSE, then it will be assumed that there is potential for the Project alone to contribute to an in-combination LSE. However, it should be noted that given the precautionary nature of screening, it is possible for some sites/features screened in for potential LSE for the Project alone to be found to have no pathway/connectivity in assessment and therefore no potential for the Project to contribute to any in-combination effect. In addition, should the Project alone be found to have a *de minimis* level of effect, the potential to contribute to an in-combination impact will be considered on a *de minimis*

basis. Finally, for an in-combination effect to result to a specific protected site and feature, there needs to be a plan or project acting in-combination.

6.3.2 The in-combination assessment will therefore assess the potential for the Project to contribute to an in-combination effect where:

- The potential impact from the Project is greater than zero (noting that a *de minimis* effect should be considered trivial and inconsequential); and
- There is a plan or project to act in-combination.

6.3.3 As is standard for in-combination assessments for offshore wind, a tiered approach to plans and projects in-combination will be applied, to take account of plan and project certainty (for example a project in early stages of planning compared to a project with consent) and the level of detail available (for example a project at Scoping would not have quantitative numbers to include in-combination). How plans and projects are assigned to tiers will be defined on a receptor group basis. Where an impact is temporally limited (e.g. underwater noise) this will also be a consideration in the assessment. To ensure a 'whole project' approach is taken to the in-combination assessment, the first tier will include the Proposed Offshore Development and the Proposed Onshore Development, with a summary of relevant offshore impacts (if any) to be included for reference. Wider plans and projects would be incorporated into subsequent tiers.

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Appendix A: Designated Site Citations and Relevant Documents

CITATION

**TURCLOSSIE MOSS
SITE OF SPECIAL SCIENTIFIC INTEREST
Aberdeenshire**

Site code: 1682

NATIONAL GRID REFERENCE: NJ884574

OS 1: 50 000 SHEET NO: Landranger Series 30
1: 25 000 SHEET NO: Explorer Series 426

AREA: 62.8 hectares

NOTIFIED NATURAL FEATURES

Biological : Bogs : Intermediate bog (raised)

DESCRIPTION

Turclossie is located 14 km to the south-west of Fraserburgh. The Moss combines features of blanket bogs with those of raised bogs and has therefore been classified as an intermediate or mixed raised and blanket bog. The moss is thought to have been part of a much larger peatland with characteristics of blanket bogs including a range in altitude. Today, the northern edge of Turclossie Moss is at slightly higher altitude (about 10 m) than its southern edge. Turclossie has been modified by peat cutting in the past but a central area of uncut dome remains intact, surrounded by re-vegetated peat cuttings.

The structure and peat archive of the central dome are intact. The predominant bog vegetation is characterised by ling heather *Calluna vulgaris* and hare's-tail cottongrass *Eriophorum vaginatum*. This community is found across both the primary and secondary expanse, and is frequently rich in bog mosses (*Sphagnum* species).

The area surrounding the primary bog and extending to the edge of the moss has mostly been cut over. These cuttings often retain deep peat and are dependent on rain water. These areas are of interest in their own right but are also essential for rehabilitating the hydrology of the remaining dome. In some of these old peat cuttings where the water table is closer to the surface than on the primary bog, there is more active peat formation, and sphagnum moss diversity and abundance is higher. *Sphagnum magellanicum*, an indicator species often reflecting peat-forming capability, occurs frequently on these wetter cut-over surfaces.

NOTIFICATION HISTORY

First notified under the 1981 Act: 3 June 1996.

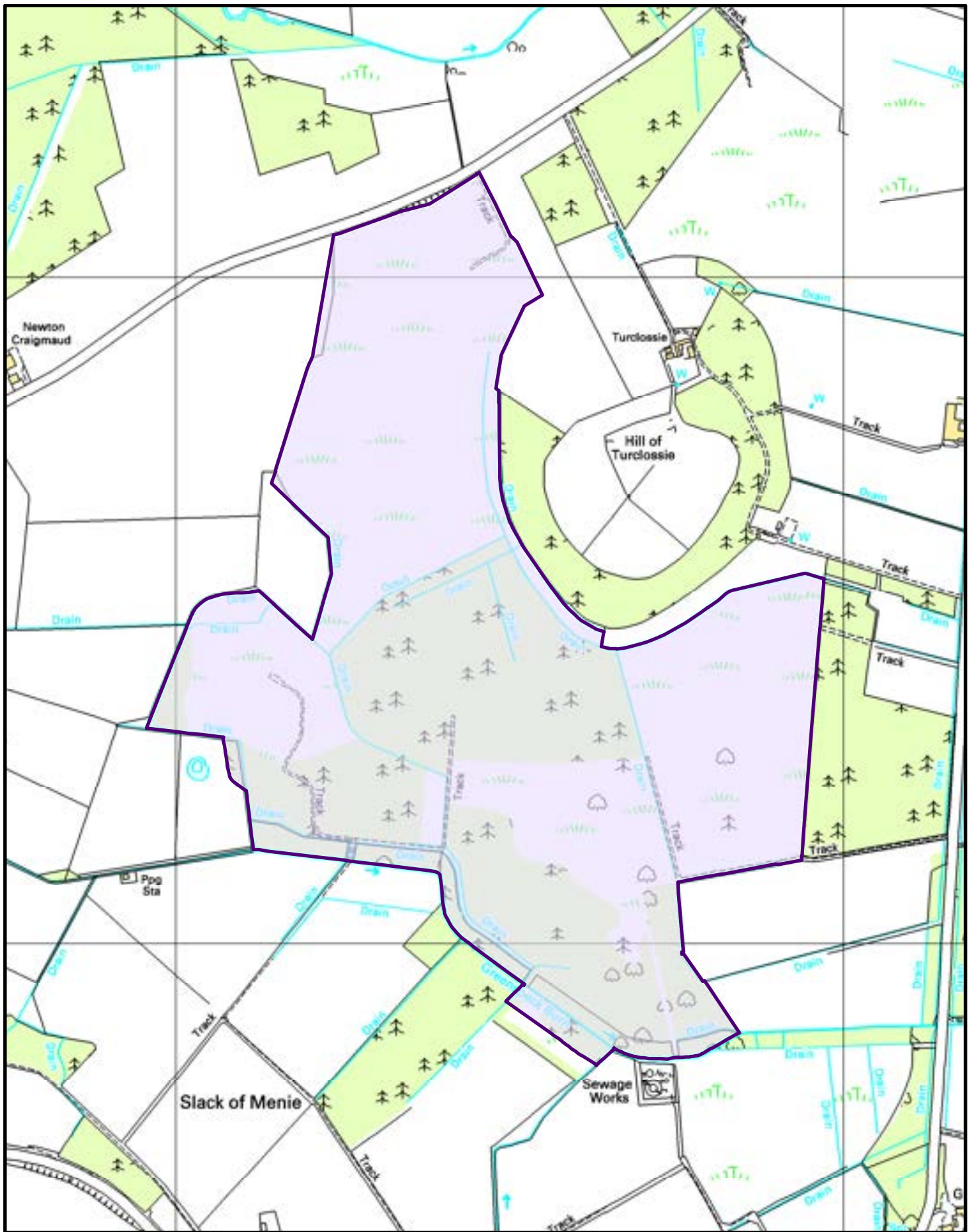
Notification reviewed under the 2004 Act: 16 September 2011.

REMARKS

Turclossie Moss SSSI is designated as Turclossie Moss Special Area of Conservation (SAC), for the following European habitats.

Active raised bog


Degraded raised bog



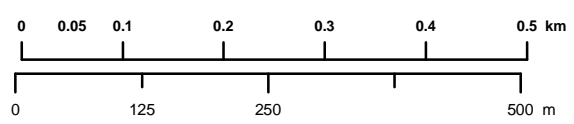
Turclossie Moss

Special Area of Conservation

EC Site Code: UK0019800

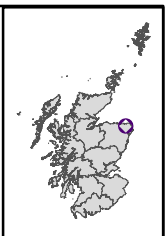
 Site boundary

Produced by: Geographic Information Group, SNH, 2011
 © Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2011. All rights reserved. Ordnance Survey Licence number SNH 100017908.



Scale 1:7,500

This is an updated representation of the designated site boundary.
 Any apparent small differences are due to changes to the OS backdrop.



Ramsar Convention on Wetlands of International Importance Especially as
Waterfowl Habitat

CITATION FOR RAMSAR SITE

(Kampala criteria, 2005)

LOCH OF STRATHBEG (UK13041)

Site Description:

The Loch of Strathbeg Ramsar site is composed of a dune slack pool with surrounding wetland habitats (open water transition fen, fen-meadow and alder willow carr), dune and grassland communities. It provides wintering and breeding habitat for a number of important wetland bird species, particularly wildfowl.

Interest Features (marked in bold): NB, all bird figures relate to numbers at the time of designation except where amended by the 2001 SPA Review and/or by subsequent surveys (Svalbard barnacle goose):

The Loch of Strathbeg Ramsar site qualifies under Ramsar Criterion 1 by virtue of it containing:

- The largest **dune slack pool** in Britain, with an area of 200 ha.

The Loch of Strathbeg Ramsar site also qualifies under Ramsar Criterion 2 by supporting:

- **Sandwich tern** *Sterna sandvicensis* (1985 to 1990, an average of 280 pairs, 2.0% of the GB population).

The Loch of Strathbeg Ramsar site further qualifies under Ramsar Criterion 5 by regularly supporting waterbirds in numbers of 20,000 individuals or more. In the five-year period 1986/87 to 1990/91 the average peak count was 32,600 individual waterbirds. The site also qualifies under Ramsar Criterion 4 by supporting the following waterbird species at a critical stage in their life cycles:

- **Teal** *Anas crecca* (1,270 individuals, 1% of the GB population), and
- **Goldeneye** *Bucephala clangula* (150 individuals, 1% of the GB population).

Pink-footed goose, greylag goose, whooper swan and Svalbard barnacle goose are also components of the waterbird assemblage.

The Loch of Strathbeg Ramsar site qualifies under Ramsar Criterion 6 by regularly supporting 1% or more of the individuals in a population of waterbirds:

- **Pink-footed goose** *Anser brachyrhynchus* (1986/87 to 1990/91, average winter peak count of 27,500 individuals, 25% of the Eastern Greenland/Iceland/UK biogeographic population).

- **Greylag goose** *Anser anser* (1986/87 to 1990/91, average winter peak count of 5,565 individuals, 6% of the Iceland/UK/Ireland biogeographic population).
- **Whooper swan** *Cygnus cygnus* (a 5-year winter peak mean between 1986/87 and 1990/91 of 245 individuals, 1.5% of the Iceland/UK & Ireland biogeographic population), and
- **Svalbard barnacle goose** *Branta leucopsis* (a 5-year winter peak mean between 2005/06 and 2009/10 of 520 individuals, 1.6% of the Svalbard/SW Scotland biogeographic population).

Area: 616.26 ha

National Grid Ref: NK068602

OS Sheet 1:50,000: 30

Designated on 27 November 1995.

This (amended) citation adopted on 5 January 2022.

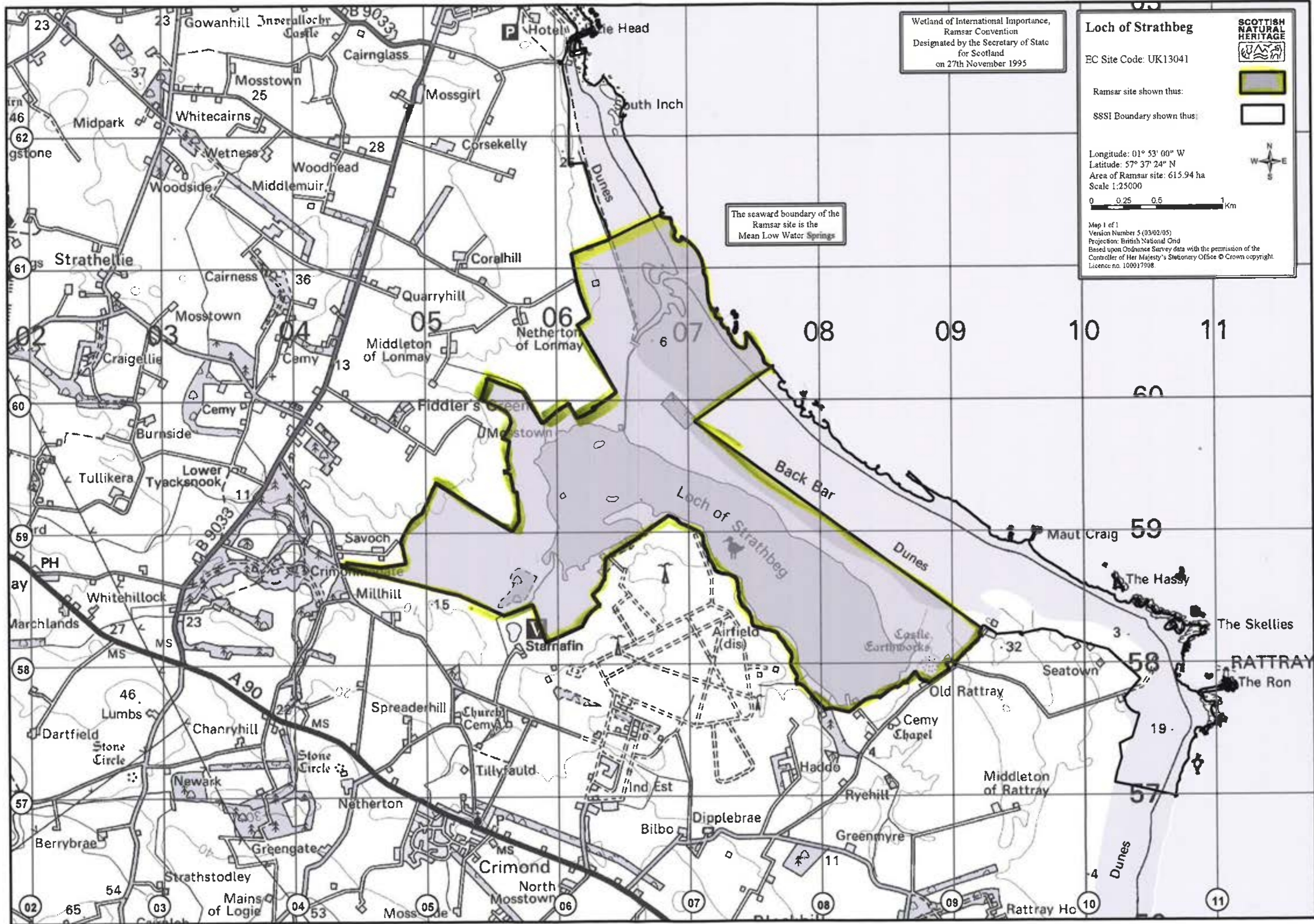
Measured site area corrected from 485 ha

Other Designations that underpin the Ramsar Site:

These provide the statutory mechanisms for protection and management of the Ramsar site.

The boundary of the Ramsar site is coincident with the Loch of Strathbeg Special Protection Area (SPA), which underpins all the bird features of the Ramsar site. The dune slack pool is considered to be supporting habitat for the SPA and Ramsar bird populations as it provides essential feeding habitat.

The Ramsar site also lies within the Loch of Strathbeg Site of Special Scientific Interest (SSSI). The dune slack pool Ramsar habitat feature is additionally underpinned by the SSSI as eutrophic loch.



Wetland of International Importance,
Ramsar Convention
Designated by the Secretary of State
for Scotland
on 27th November 1995

Loch of Strathbeg



EC Site Code: UK13041

Ramsar site shown thus:



SSSI Boundary shown thus:



Longitude: 01° 53' 00" W
Latitude: 57° 37' 24" N
Area of Ramsar site: 615.94 ha
Scale 1:25000



0 0.25 0.5 1 Km

Map 1 of 1
Version Number 5 (03/02/05)
Projection: British National Grid
Based upon Ordnance Survey data with the permission of the
Controller of Her Majesty's Stationary Office © Crown copyright.
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The seaward boundary of the
Ramsar site is the
Mean Low Water Springs

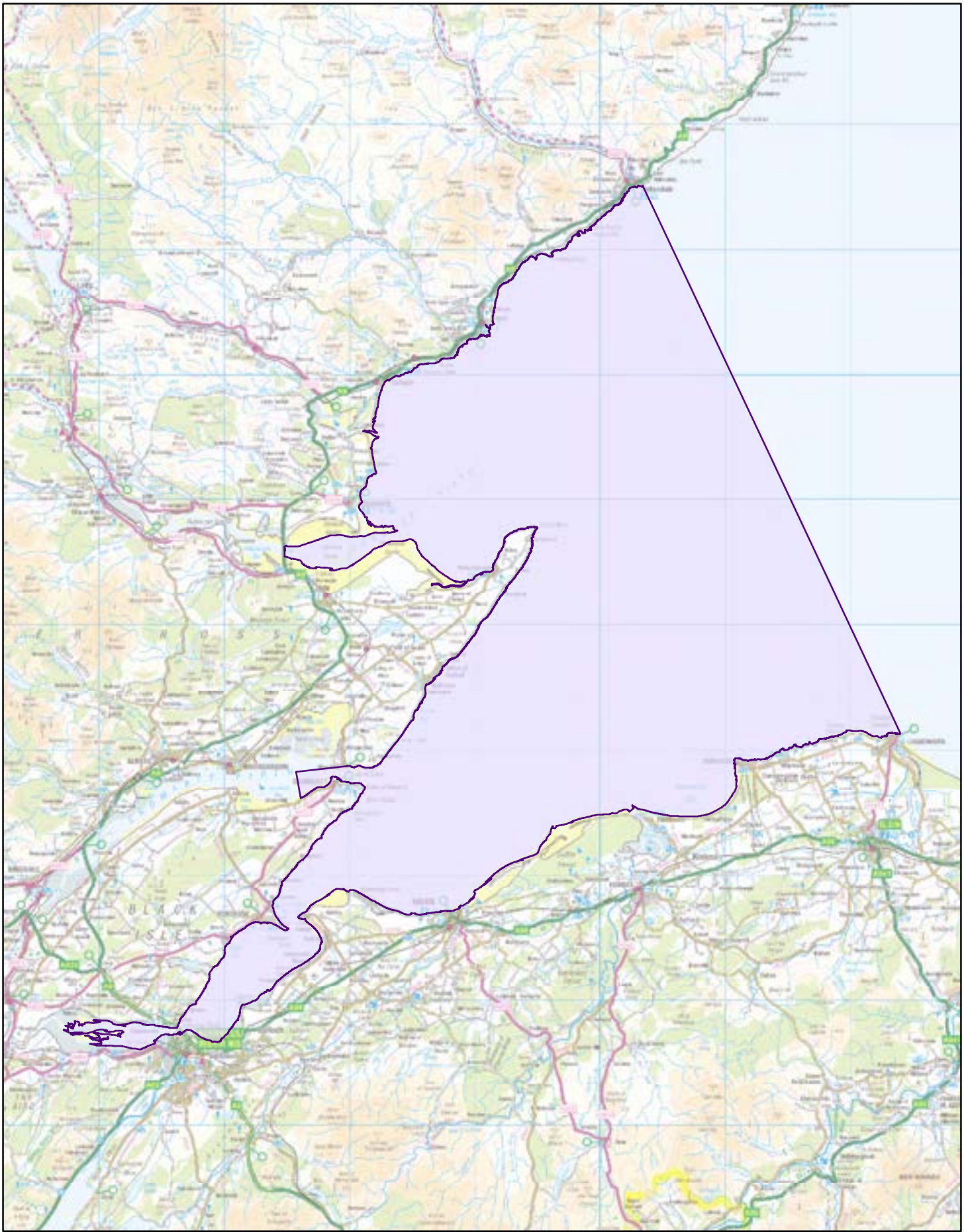
MORAY FIRTH SPECIAL AREA OF CONSERVATION (SAC)

Designation date: 17 March 2005

Administrative area: Highland; Moray

Qualifying Interests for which the site is designated:

SCIENTIFIC NAME	COMMON NAME
Sandbanks which are slightly covered by sea water all the time	Subtidal sandbanks
<i>Tursiops truncatus</i>	Bottlenose dolphin



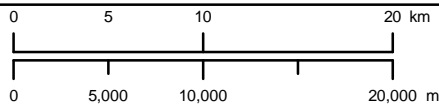
Moray Firth

Special Area of Conservation (SAC)

EC Site Code: UK0019808

 Site boundary

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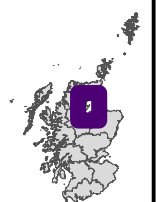


Scale 1:400,000

This is an updated representation of the designated site boundary. Any apparent small differences are due to changes to the OS backdrop.



OS backdrop map is 1:250,000



LOWER RIVER SPEY – SPEY BAY SPECIAL AREA OF CONSERVATION (SAC)

Designation date: 17 March 2005

Administrative area: Moray

Qualifying Interests for which the site is designated:

SCIENTIFIC NAME	COMMON NAME
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion alvae</i>)*	Alder woodland on floodplains
Perennial vegetation of stony banks	Coastal shingle vegetation outside the reach of waves

* Indicates a priority habitat



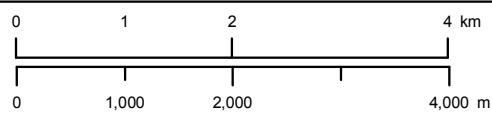
Lower River Spey - Spey Bay

Special Area of Conservation (SAC)

EC Site Code: UK0019978

 Site boundary

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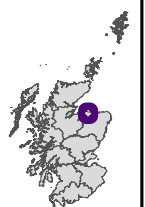


Scale 1:70,000

This is an updated representation of the designated
 site boundary. Any apparent small differences are due
 to changes to the OS backdrop.



OS backdrop map is 1:50,000



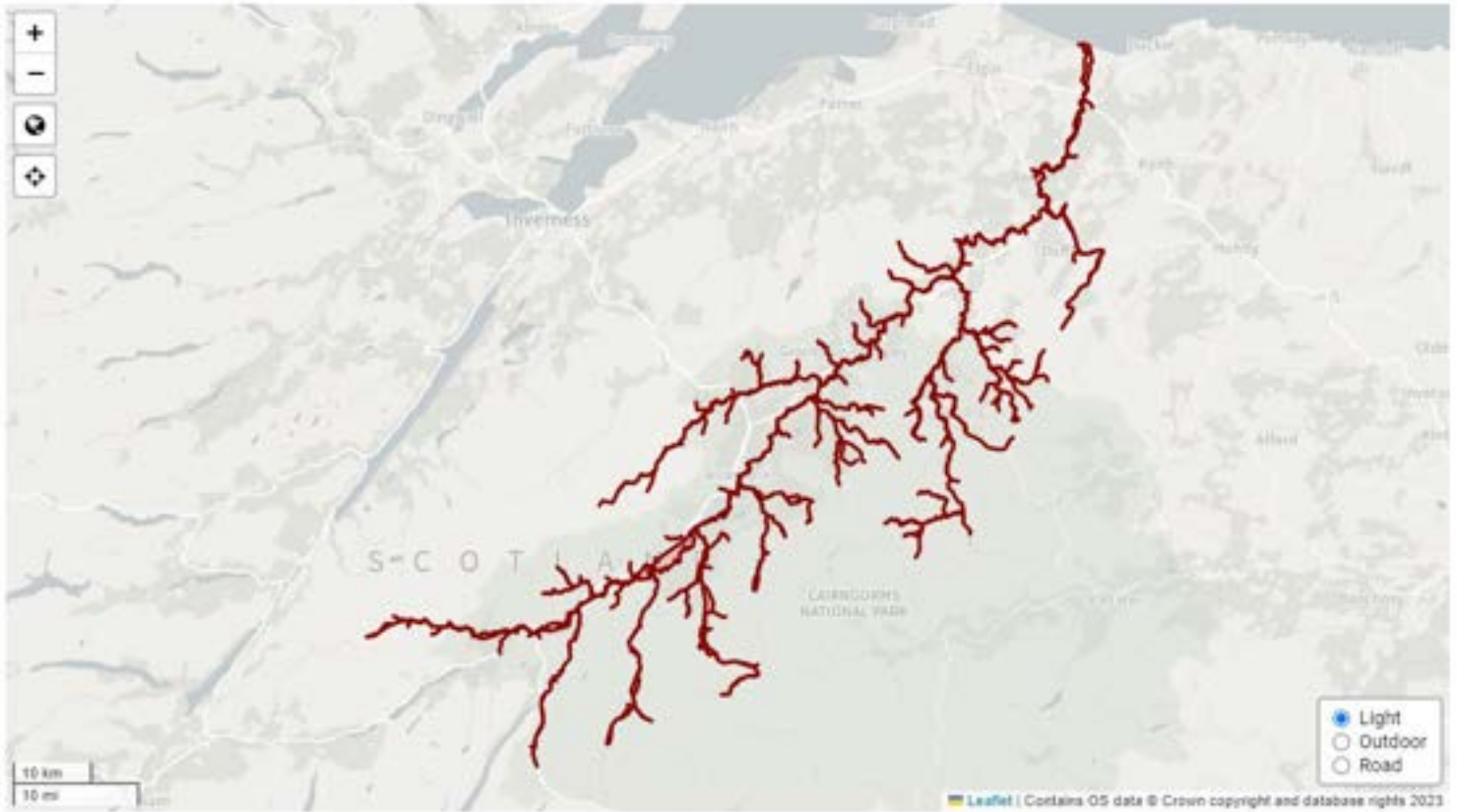
RIVER SPEY SPECIAL AREA OF CONSERVATION (SAC)

Designation date: 17 March 2005

Administrative area: Highland; Moray

Qualifying Interests for which the site is designated:

SCIENTIFIC NAME	COMMON NAME
<i>Lutra lutra</i>	Otter
<i>Margaritifera margaritifera</i>	Freshwater pearl mussel
<i>Petromyzon marinus</i>	Sea lamprey
<i>Salmo salar</i>	Atlantic salmon



Appendix B: Metadata for the Designated Site Boundary Files

Data	Raw Source File Name	Source Data Owner	Source	Download Date
SPA	Special Protection Areas	JNCC NatureScot Site Link	https://sitelink.nature.scot/home https://jncc.gov.uk/our-work/special-protection-areas/	16/06/23
SAC	Special Areas of Conservation	JNCC NatureScot Site Link	https://sitelink.nature.scot/home https://jncc.gov.uk/our-work/special-areas-of-conservation/	16/06/23
Ramsar	Ramsar	JNCC NatureScot Site Link	https://sitelink.nature.scot/home https://jncc.gov.uk/our-work/ramsar-sites/	16/06/23