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Habitats Regulations Appraisal Screening Report MarramWind Offshore Wind Farm

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Appendix A: Annex 1 Habitats Screening Matrix

Appendix B: Marine Mammals Screening Matrix

Appendix C: Ornithological Features Screening Matrix

1 Introduction

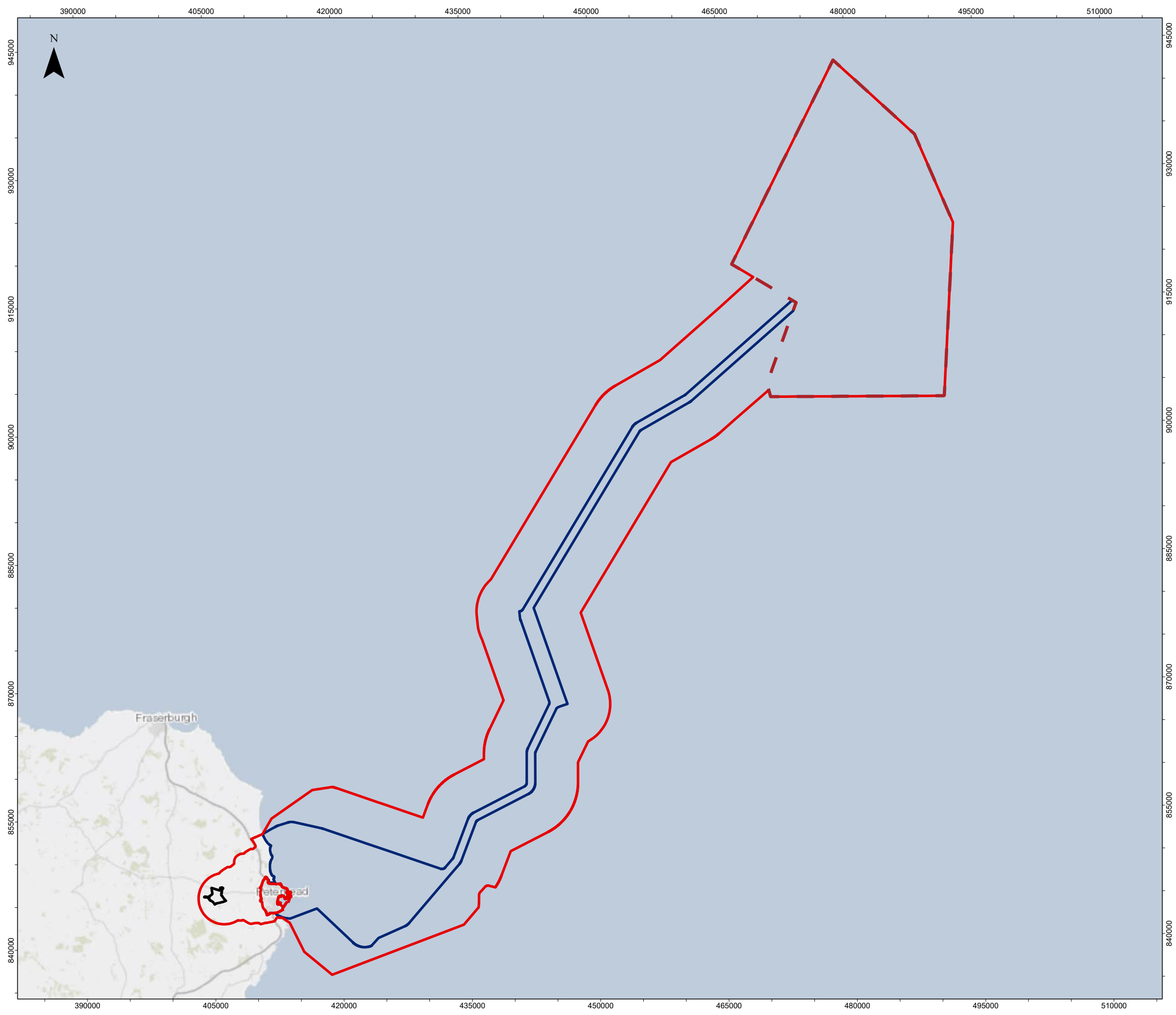
1.1 The Project

- 1.1.1.1 MarramWind Limited (hereafter referred to as 'the Applicant') is a 50/50 Joint Venture company between ScottishPower Renewables (SPR) UK Limited and Shell New Energies Holding Limited (Shell). The Joint Venture is formalised by way of a Shareholder Agreement.
- 1.1.1.2 The MarramWind Offshore Wind Farm (the 'Project') is a proposed floating offshore wind farm with a grid connection capacity of 3 gigawatts (GW).
- 1.1.1.3 The Project's generating infrastructure will be located in the North Sea, within the 'Scottish Zone' (as defined in the Scotland Act 1998) of the United Kingdom (UK) Exclusive Economic Zone. It will be located within the Option Agreement Area (OAA), which is the spatial boundary of the north-east 7 (NE7) Plan Option, as defined in the Scottish Government's Sectoral Marine Plan for Offshore Wind Energy (Scottish Government, 2020a). The OAA is located north-east of Rattray Head on the Aberdeenshire coast in north-east Scotland. The OAA (and therefore the Project's generating infrastructure) is located approximately 75 kilometres (km) at its nearest point to shore and 110km at its furthest point. This is shown in **Figure 1.1**.

1.2 Project design envelope

- 1.2.1.1 This Habitats Regulations Appraisal (HRA) Screening Report presents a design envelope that has been refined since Environmental Impact Assessment (EIA) Scoping Report (January 2023). The Scoping Report was based on two distinct options:
- a full 3GW connection in the vicinity of Peterhead; or
 - a 1.5GW connection in the vicinity of Peterhead with the residual assumption of a 1.5GW connection to New Deer.
- 1.2.1.2 The Project secured a connection to the National Electricity Transmission System (NETS) prior to the ScotWind Leasing process. National Grid Electricity System Operator (NGESO) stated that the grid connection point for 3GW would be at New Deer. However, this was subsequently revised when NGESO published the Holistic Network Design (HND) report in July 2022. This report confirmed that 1.5GW of the Project's capacity would be connected near Peterhead, with the remaining capacity to be confirmed as part of the HND Follow Up Exercise (HND FUE) which was expected to be published at the end of Q1 2023.
- 1.2.1.3 In March 2024, National Grid Electricity System Operator Limited (NGESO) published the Beyond 2030 report, which presented the ScotWind elements of the HND FUE. This report confirmed that the full 3GW connection for the Project will be connected to the Scottish and Southern Electricity Networks (SSEN) Netherton hub at Longside, near Peterhead. This update allows for further refinement of the Project design envelope since the EIA Scoping Stage in January 2023.
- 1.2.1.4 The design development is in progress and various technologies are possible to support the development of the Project but these have varying constraints that prevent the Project concluding on a specific technology at this time. The work being undertaken will determine the different aspects of the Project, such as the requirement for conversion technology and number of cables that are required for the various technology options and will be included within the design envelope.
- 1.2.1.5 The Project design envelope will be refined as the Project continues to evolve through the key subsequent stages of the iterative design, considering stakeholder responses and baseline data collection in addition to the conclusion of grid negotiations. The Project

Boundary presented as the basis of this HRA Screening Report represents a worst-case scenario for the purposes of HRA Screening (see **Figure 1.1**). The Project Boundary will be refined and the Screening summary updated before the Report to Inform Appropriate Assessment (RIAA) is prepared in conjunction with continuing dialogue with the relevant stakeholders.



- Project Boundary
- NE7 Option Agreement Area
- Export cable survey corridor zone
- Proposed SSEN Netherton Hub Substation



	ddmm/yyyy	--	--	--	--
2	24/05/2024	LT	AMc	MR	LG
1	04/12/2023	LT	AMc	MR	LG
REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER

WSP DRAWING NUMBER 808368-WEIS-IA-SC-FG-H3-36761

MarramWind DRAWING NUMBER MAR-GEN-CST-MAP-WSP-000001

DATUM	ETRS 89	PROJECTION	UTM Zone 30N

SCALE	1:425,000	PAGE SIZE	A3

PROJECT TITLE

MarramWind Offshore Wind Farm

DRAWING TITLE

Figure 1.1 Project boundary

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Service Layer Credits: OS Open Background: Contains OS data © Crown Copyright and database right 2020
World Ocean Reference: Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS
World Ocean Base: Esri, GEBCO, Garmin, NaturalVue

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MarramWind

A joint venture between ScottishPower and Shell UK

1.3 Purpose of this Report

1.3.1 Background

- 1.3.1.1 The purpose of this HRA Screening Report is to identify whether there are likely significant effects (LSEs) arising from the Project, either alone or in-combination with other plans or projects, on Designated sites. Where LSEs are identified an Appropriate Assessment (AA) would then be required.

1.3.2 Purpose of this Report

- 1.3.2.1 Under Regulation 48 of the Conservation (Natural Habitats, &c.) Regulations 1994, Regulation 28 of the Conservation of Offshore Marine Habitats and Species Regulations 2017 and Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) (the “Habitats Regulations”), a person applying for any consent, permission or other authorisation for a plan or project must provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable them to determine whether an AA is required. Thus, the applicant is responsible for assembling and describing all the relevant information required to enable the competent authorities to carry out their HRA responsibilities. Ramsar sites are also assessed under Policy 4 of the Scottish Government’s National Planning Policy Framework 4 (NPF4).
- 1.3.2.2 Both Aberdeenshire Council and Marine Directorate Licensing and Operations Team (MD-LOT) (on behalf of Scottish Ministers) are the competent authorities for the purposes of the Habitats Regulations in relation to this Project. The Habitats Regulations require competent authorities, before granting consent for a plan or project, to carry out an AA in circumstances where the plan or project is likely to have a significant effect on a European site (see **Section 3.1** for definition), either alone or in combination with other plans or projects.

1.3.3 Structure and contents

- 1.3.3.1 This Report is structured as follows:
- **Chapter 1:** Introductory paragraphs, project design envelope and background information;
 - **Chapter 2:** Project Description;
 - **Chapter 3:** The HRA Process and the Proposed Approach to Screening;
 - **Chapter 4:** HRA Screening Step 1: Designated Site Selection Process;
 - **Chapter 5:** HRA Screening Step 2: Environmental Baseline Conditions relevant to Screening;
 - **Chapter 6:** HRA Screening Step 3: Identification Of Impact Pathways;
 - **Chapter 7:** HRA Screening Step 4: Determination of the potential LSEs on Designated Sites Alone and In-Combination Assessment;
 - **Chapter 8:** Summary of LSEs;
 - **Chapter 9:** List of references used to inform this Report; and
 - **Chapter 10:** List of abbreviations and glossary terms used in this Report.

1.3.3.2 Appendices that provide information to support this Report are as follows:

- **Appendix A** Annex I Habitat Screening Matrix;
- **Appendix B** Marine Mammals Screening Matrix; and
- **Appendix C** Ornithological Features Screening Matrix.

2 Project Description

2.1 Introduction

- 2.1.1.1 This Section will inform Step 2 of the HRA Screening (see **Chapter 5**), which requires an understanding of the location and description of the elements of the Project that could result in LSEs on a Designated site or land functionally linked to that site. The description must identify the elements of the Project that may directly affect a Designated site (e.g. land-take), those that may indirectly affect a Designated site (e.g. emissions to air) and those that may act in-combination with other plans or projects.

2.2 The Project

2.2.1 Key infrastructure components

- 2.2.1.1 The proposed key components of the Project area are shown in **Figure 1.1**. The offshore infrastructure, located seaward of MHWS, includes the following:

- wind turbine generators (WTGs), including floating units (platforms and station keeping systems);
- array cables;
- accommodation platform(s) (if required);
- offshore substations;
- reactive compensation platform(s) (if required); and
- offshore export cables to connect the wind farm to the landfall(s).

- 2.2.1.2 Onshore infrastructure, located landward of Mean Low Water Springs (MLWS) includes the following:

- landfall(s);
- onshore export cables running from the landfall(s) to the onshore substation(s) site;
- onshore substation(s) site;
- grid connection cables (connecting the onshore substation(s) site to the grid connection point); and
- grid connection point (at the proposed SSEN Netherton Hub substation, which does not form part of the planning application).

2.2.2 Overview of the Project infrastructure

- 2.2.2.1 Key components of the Project are illustrated in **Plate 2.1** and a description of the function of each component is provided in **Table 2.1**.

Plate 2.1 Key infrastructure components for the Project

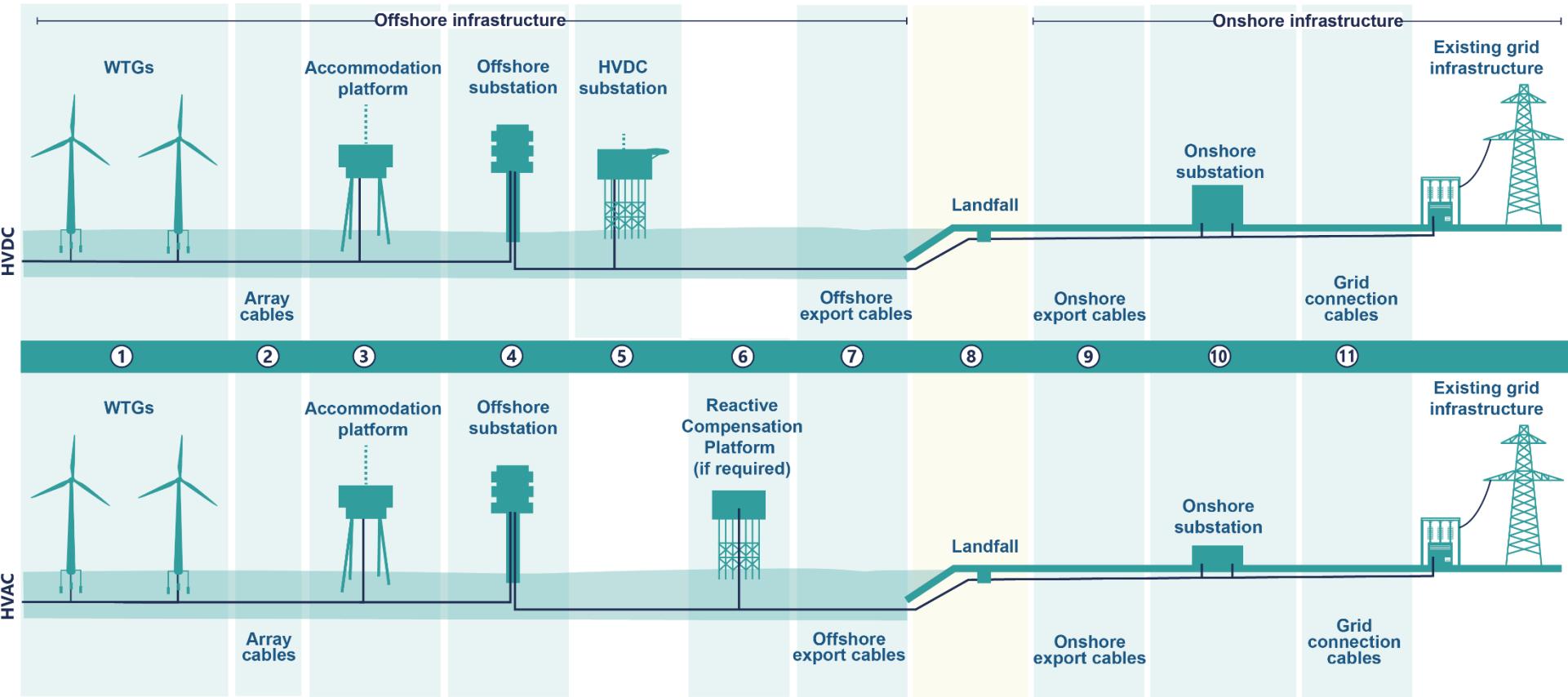


Table 2.1 Key components and functionality

Plate 2.1 ID	Component	Purpose / function
Offshore infrastructure		
1	Floating WTGs	WTGs convert wind energy to electricity. Each floating WTG will comprise a tower (potentially assembled in sections), a rotor with multiple blades (typically three) attached to a nacelle. The nacelle typically houses a gearbox (except for direct drive technologies), generator, converter, transformer, and control equipment.
	WTG floating unit	The water depth range at the Project site exceeds the maximum depth at which fixed structure foundations are generally deployed. The floating unit comprises the WTG described above as well as a floating platform, or “floater”. These are positively buoyant and are moored in position on the seabed and used to support the WTGs. Several floater concepts are currently under consideration.
	WTG station keeping system	Each WTG floating unit will be secured in place using a station keeping or mooring system, involving mooring lines and anchors. Typically, multiple mooring lines will spread out radially from the floating structure, each ending in an anchor point on the seabed.
2	Array cables	Array cables will be used to connect the WTGs to one another in strings (or loops) and to the offshore substation(s). The cables will have a requirement to withstand both dynamic conditions at the floaters as well as static lay and burial in or on the seabed. The cables may be buried below the seabed or otherwise protected from damage using secondary protection such as rock berms or concrete mattresses.
3	Accommodation platform	An accommodation platform may be required to provide permanent welfare and accommodation facilities for personnel working on site to operate and maintain the wind farm. It may have a helideck for personnel access. Such a platform, if required, may have a floating or a fixed foundation (as described for items 1 and 4 respectively).

Plate 2.1 ID	Component	Purpose / function
4	Offshore substation(s)	Offshore substation platforms are installed to collect the energy generated by the WTGs and house the transmission equipment. The latter is required to convert the wind farm electricity to higher voltages necessary for long distance transmission through subsea cables to the onshore grid. Several platforms may be required for the Project. The offshore substation(s) will be installed on either 'fixed' foundations (i.e. solid structures standing on and secured to the seabed) or floating platforms. Several different designs may be considered with either steel or concrete construction. Scour protection, typically in the form of rock or mattresses, may be installed on the seabed around the fixed foundations to prevent sediments from being eroded by localised currents around the structure. It may have a helideck for personnel access.
5	HVDC substation (HVDC only)	Additional equipment is required for High Voltage Direct Current (HVDC) transmission to convert the Alternating Current (AC) power from the WTGs to Direct Current (DC). This may be installed on a separate platform or combined with the offshore AC substation.
6	Reactive Compensation Platform (RCP) (HVAC only)	For High Voltage Alternating Current (HVAC) transmission, there is an upper limit of offshore export cable route length, beyond which the electrical losses incurred during transmission become prohibitive. This limit can be increased using reactive power compensation equipment connected through a separate substation(s) along the export cable route, typically at the mid-point between the offshore substation and landfall(s). The additional offshore platform(s) are typically similar in design and construction to the main offshore substations in the offshore wind farm area but may potentially be lighter in design due to the limited electrical equipment needed and usually shallower water depth.
7	Offshore export cables	Subsea export cables connect the offshore substation(s) to the landfall site(s) where a transition joint bay links the offshore subsea cables to the onshore underground cables. This cable system is necessary to export power from the offshore wind farm through the onshore substation(s) to the existing grid network. The number and type of cables will depend on the transmission technology used and site installation conditions, particularly at the landfall(s).

Plate 2.1 ID	Component	Purpose / function
		As with the array cables, export cables will require protection from external threats including third party damage (e.g. by anchors or fishing gear) and hydrodynamic loading (i.e. stress caused by cross currents). Protection will generally be achieved by burial where possible, and via secondary protection methods such as concrete mattresses or rock berms where burial is not possible.
Landfall(s)		
8	Landfall(s)	The landfall is the area where the offshore export cables cross from the marine environment, through the intertidal zone and onto shore to the transition joint bay. Depending on the characteristics of the site, different construction techniques may be used. The two most common techniques are open cut/cut-and-fill construction (digging a trench in which the export cable is laid) and Horizontal Directional Drilling (HDD) (tunnelling a hole through which the export cable is pulled). Depending on the site characteristics and the final landfall selection/design taken forward, a cofferdam construction may also be considered.
	Transition joint bay	This is a component of the landfall and is where the offshore export cables connect with the onshore export cables (which are of different construction) via transition joint bays. These are typically in a pit dug below ground level. Once both sets of cables are installed, the transition joint bays are re-buried with access remaining for maintenance and repair via relatively small link boxes.
Onshore infrastructure		
9	Onshore export cables	These are underground cables that connect from the landfall transition joint bay to the onshore substation(s). As with the offshore export cables, the type and number of cables will depend on the transmission technology used and installation conditions along the route (e.g. crossings, ground conditions etc.). Installation conditions will be assessed on confirmation of the onshore cable

Plate 2.1 ID	Component	Purpose / function
		routing. Cables are typically installed in ducts in a standard buried trench arrangement where possible. HDD or other tunnelling methods may be necessary to cross sensitive features such as watercourses, roads and railways. Routing in roads may be necessary in some cases where concrete ducts may be utilised to protect the cables. Cables will be installed in sections and jointed together at regular intervals. Each set of joints between cable sections will be housed within a joint bay; similar to a transition joint bay (as above) but with the exception that the sections jointed will be of the same or similar design.
10	Onshore substation(s) site	New onshore 'converter' substation infrastructure will be required to convert the transmitted power to be compatible for feed-in to the National Electricity Transmission System (NETS). As with the offshore converters, additional equipment will be required for HVDC transmission. The onshore substation(s) site will include all electrical conversion/transformation equipment needed to meet the SSEN requirements for connection to the network.
11	Grid connection cables	Further onshore export cables will be required to connect the new onshore substation(s) to the nominated NETS connection point(s). The transmission type and voltage of these cables will be compatible with grid requirements at the grid connection point.
	Grid connection	The nominated SSEN Netherton Hub Substation into which the Project will connect, noting that the SSEN Netherton Hub Substation does not form part of the planning application.

2.2.3 Description of the Project

Introduction

2.2.3.1 The current design envelope is presented in this Section, with detail provided on the activities and methods to be employed in the construction, operational and decommissioning phases of the Project.

Offshore infrastructure

2.2.3.2 The indicative Project design envelope for the offshore infrastructure is summarised in **Table 2.2**.

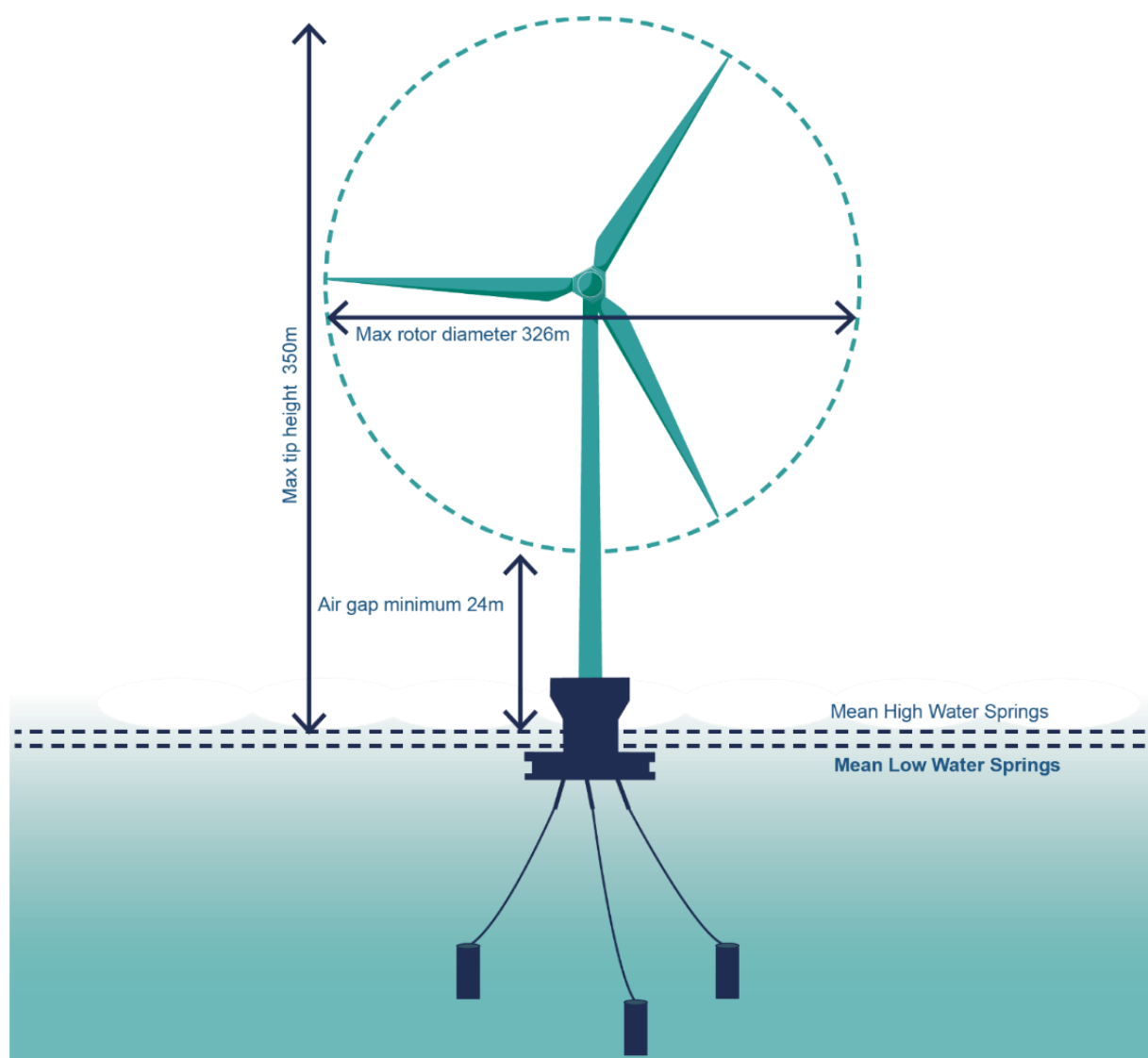
Table 2.2 Indicative offshore infrastructure design envelope

Offshore infrastructure component	Design envelope
Range of WTG capacity (Megawatts (MW))	Up to 25MW per WTG.
Indicative number of WTGs	126 – 225 WTGs. 126 WTGs if 25MW turbines are installed, and 225 WTGs if 15MW turbines are installed.
Maximum rotor diameter (metre (m))	Up to 326m.
Maximum blade tip height (m) above MHWS	Up to 350m.
Minimum blade clearance above MHWS	A minimum of 24m.
Foundation type	Floating (floating unit and mooring concepts to be confirmed) for WTGs. Fixed foundations for platforms (e.g. offshore substation and accommodation platforms), which are likely to be jacket or gravity bases.
Navigational lighting	Included as required, subject to further assessment.
Array cable voltage	Between 66 – 145 kilovolt (kV).
Target cable burial depth	Typically 1-2m, subject to Cable Burial Risk Assessment and seabed mobility.
Secondary protection	Typically concrete mattresses / rock berm.
Number of export cables	Up to 8 (dependent on technology).
Length of cable route	Up to 120km.

Wind turbine generators

- 2.2.3.3 The Project will have a total grid connection of up to 3GW. The generating capacity of the offshore wind array depends on a range of WTG specifications. The final turbine technology is to be selected as part of the iterative design process, and the selection process will continue post-consent. For the basis of assessment, each WTG will have an individual generation capacity of up to 25MW.
- 2.2.3.4 Depending on the final WTG size selected, the Project design is expected to be refined. Technology is continually developing so it is difficult to definitively predict the generating capacity of WTGs that will be commercially available at the point of construction at least five years into the future from the point of writing. The final number, size, capacity and layout of WTGs will be determined by further assessment of the optimum wind resource, prevailing site conditions, the capacity of each individual WTG and findings of environmental and engineering surveys.
- 2.2.3.5 The methods and locations for the fabrication and assembly of the WTGs are not yet known as these are reliant on the supply chain availability. The required modes of transportation for the WTGs from port / harbour location to site offshore, whether as components or assembled is also not yet known as this will depend upon the type of floater selected, as well as the fabrication and assembly locations. These Project design specifics will evolve subject to supply chain and design evolution and through engagement with stakeholders.
- 2.2.3.6 The proposed indicative design envelope for the WTGs is included in **Table 2.2** and illustrated in **Plate 2.2**.

Plate 2.2 Illustration of WTG key dimensions



Floating unit

- 2.2.3.7 The required modes of transportation for the WTGs from port / harbour or wet storage¹ location to site offshore is not yet known as this will depend upon the type of floater selected, as well as the fabrication and assembly locations. Prior to the installation of all offshore infrastructure, it may be necessary to prepare and level the seabed by activities such as dredging/pre-sweeping of sandwaves, ground reinforcement or the application of a filter layer of rock. Debris and boulder removal may also be required, and the vicinity will have to be cleared of any potential unexploded ordnance (UXO) targets.
- 2.2.3.8 The WTGs will each be mounted on a floating unit, which will consist of a floating platform or 'floater' that will be stabilised to the seabed by a dedicated 'station keeping system'. The station keeping system consists primarily of mooring lines and seabed anchors. Several design options are being considered for the floating unit at this stage of the Project. The final design concept will be identified following further market engagement, site survey and

¹ Wet storage is defined as temporary mooring of floating units or dedicated mooring locations.

design development. Typical floating unit type variations, with indicative numbers of mooring lines are illustrated in **Plate 2.3** and **Plate 2.4**. The number of mooring lines associated with the chosen floating unit is yet to be determined and will be described in the RIAA.

- 2.2.3.9 A key component of floater design also involves establishing moorings to anchor points on the seabed. The purpose of moorings is to maintain the position of the floating structure against destabilising forces over the lifetime of the development.
- 2.2.3.10 The overall seabed footprint of the WTG floating unit, whichever design concept is selected, will depend on the mooring concept applied (see **Plate 2.5**), which could be:
- catenary mooring (in which each mooring line hangs in a slack curve dictated by its own weight);
 - taut line mooring (in which each mooring line is tensioned until it is taut); and
 - semi-taut mooring (in which slack and taut elements are used in combination in the mooring system).
- 2.2.3.11 The geophysical and geotechnical surveys being undertaken for the Project will assist in establishing the appropriate length of mooring lines, which are often dependant on ground conditions of the seabed.

Plate 2.3 Illustration of floating unit types

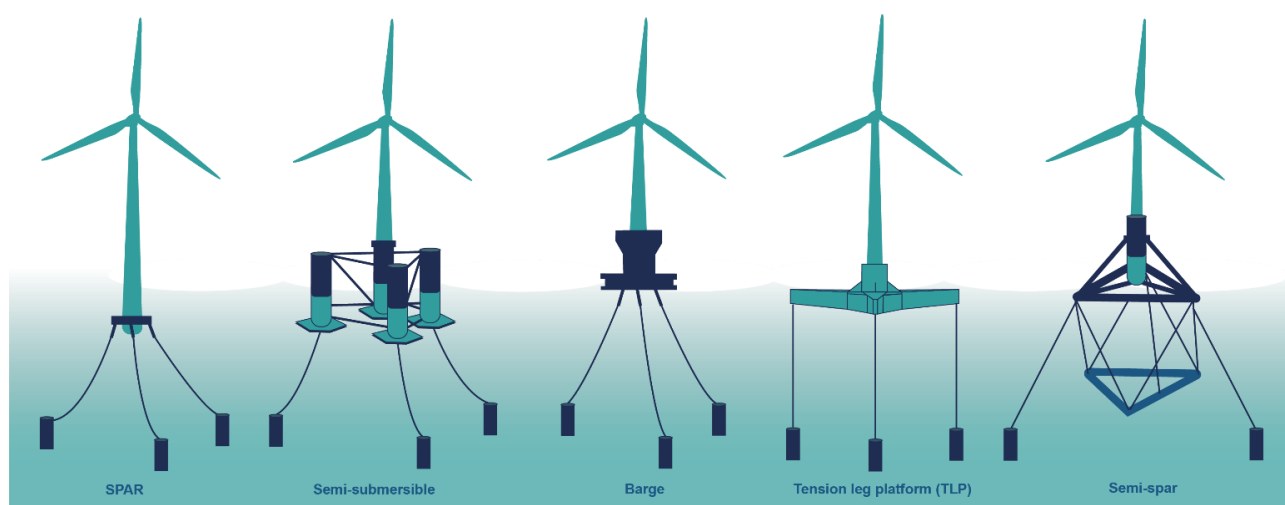


Plate 2.4 Floating platform key spatial parameters

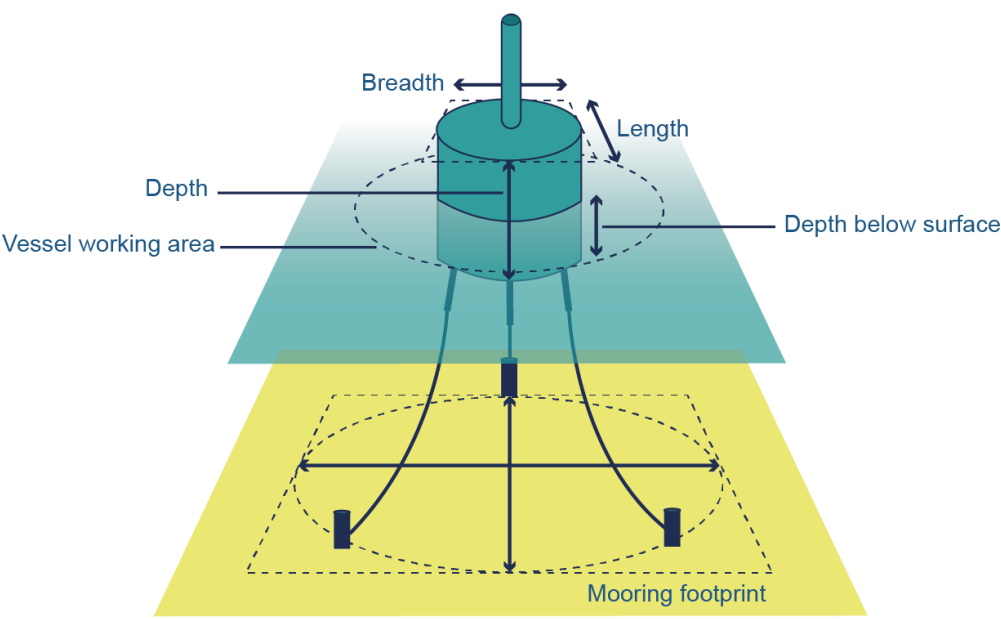
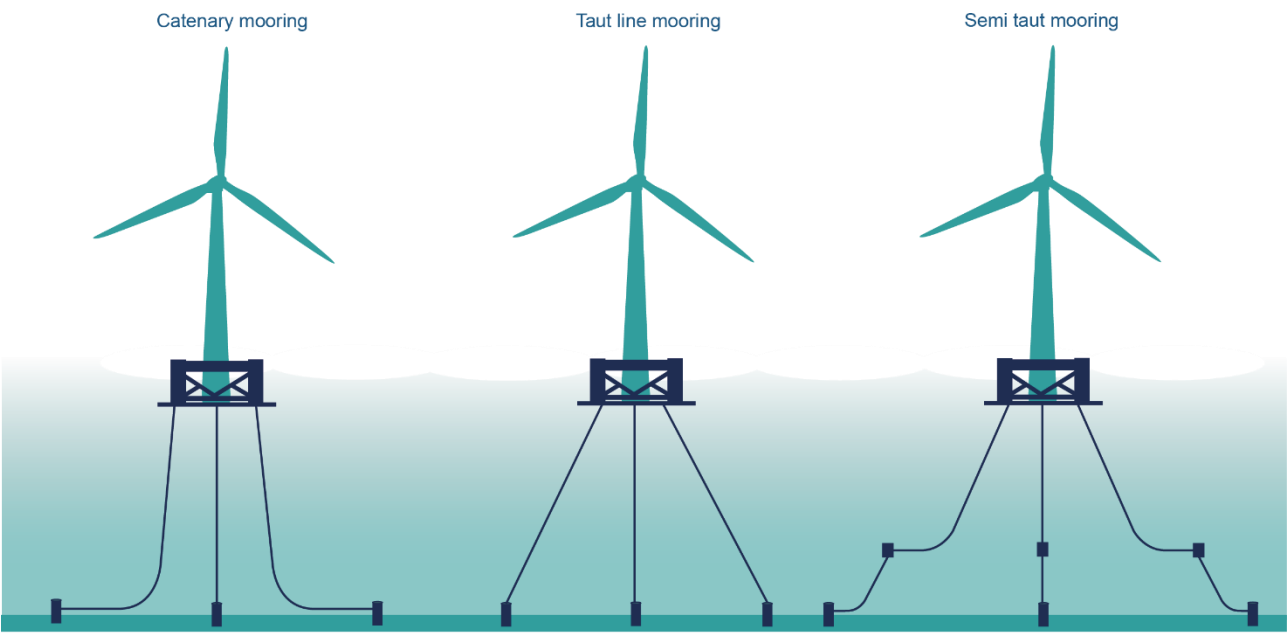


Plate 2.5 Mooring concepts

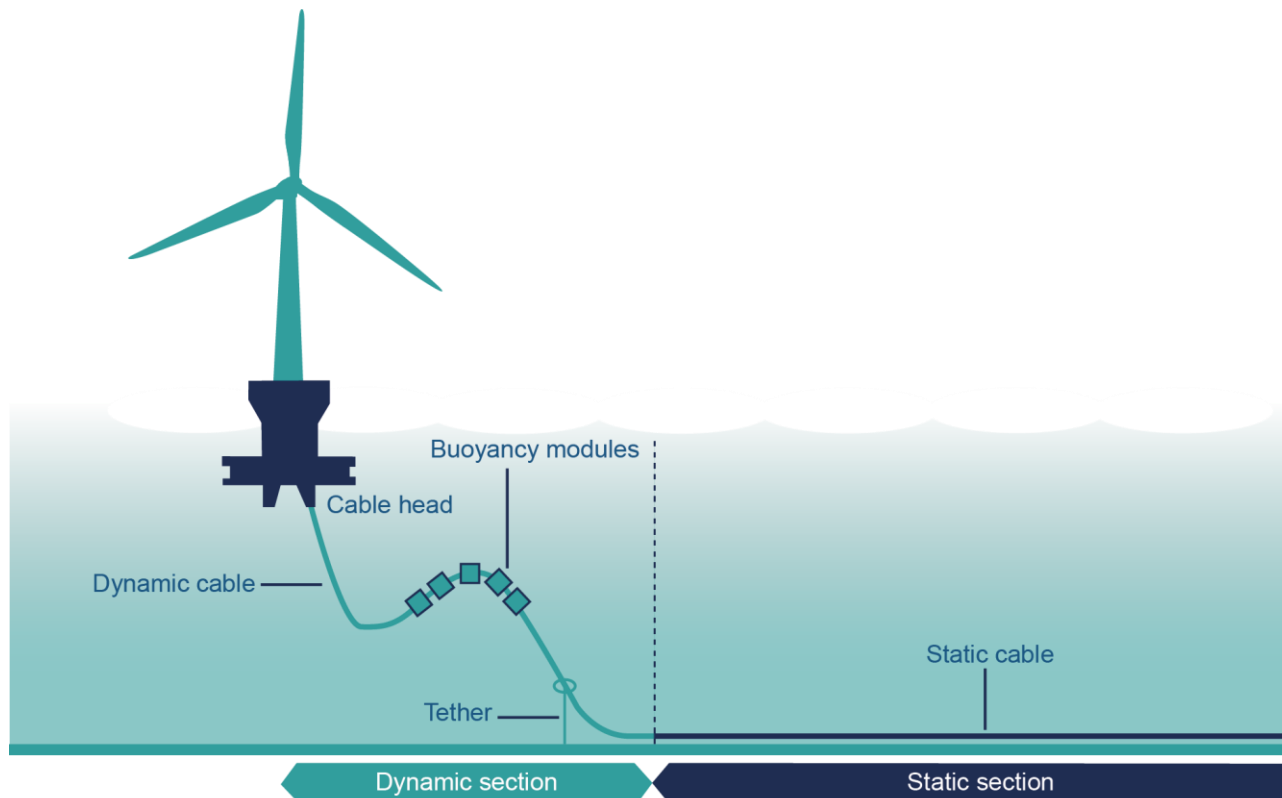


- 2.2.3.12 The proposed indicative design envelope for the floating units is included in **Table 2.2**.
- 2.2.3.13 Anchoring is an integral part of the overall mooring system and there is a wide spectrum of anchoring and mooring solutions that could be fitted to the floater concepts identified above. These include drag embedment anchors, driven piles, suction anchors, drilled and grouted piles, vertically loaded anchors, torpedo anchors and gravity-based anchors.

Array cables

- 2.2.3.14 Each array cable will be a single 3-core AC cable, constructed using a 'dynamic' cable design with additional mechanical protection. The cable can be broken down into two sections: a dynamic section required to move with the floater; and a static section that will most likely be buried for protection. A tethered reverse pliant ('lazy wave') configuration is shown in **Plate 2.6** by way of an example design but the actual approach will be determined in consideration of structure type and anticipated and extreme loading conditions.
- 2.2.3.15 The prevailing voltage in use for offshore array cables at the present time is 66kV, but higher voltages (up to 145kV) may also be used depending on the WTG rated power, technology readiness level of the cables, and associated switchgear and installation conditions onsite. The length of cable sections will be dependent on the distance between WTGs themselves, and the distance between the WTGs and offshore substation.
- 2.2.3.16 The proposed indicative design envelope for key characteristics of the array cables for the Project are summarised in **Table 2.2**.

Plate 2.6 Illustration of 'lazy-wave' dynamic cable



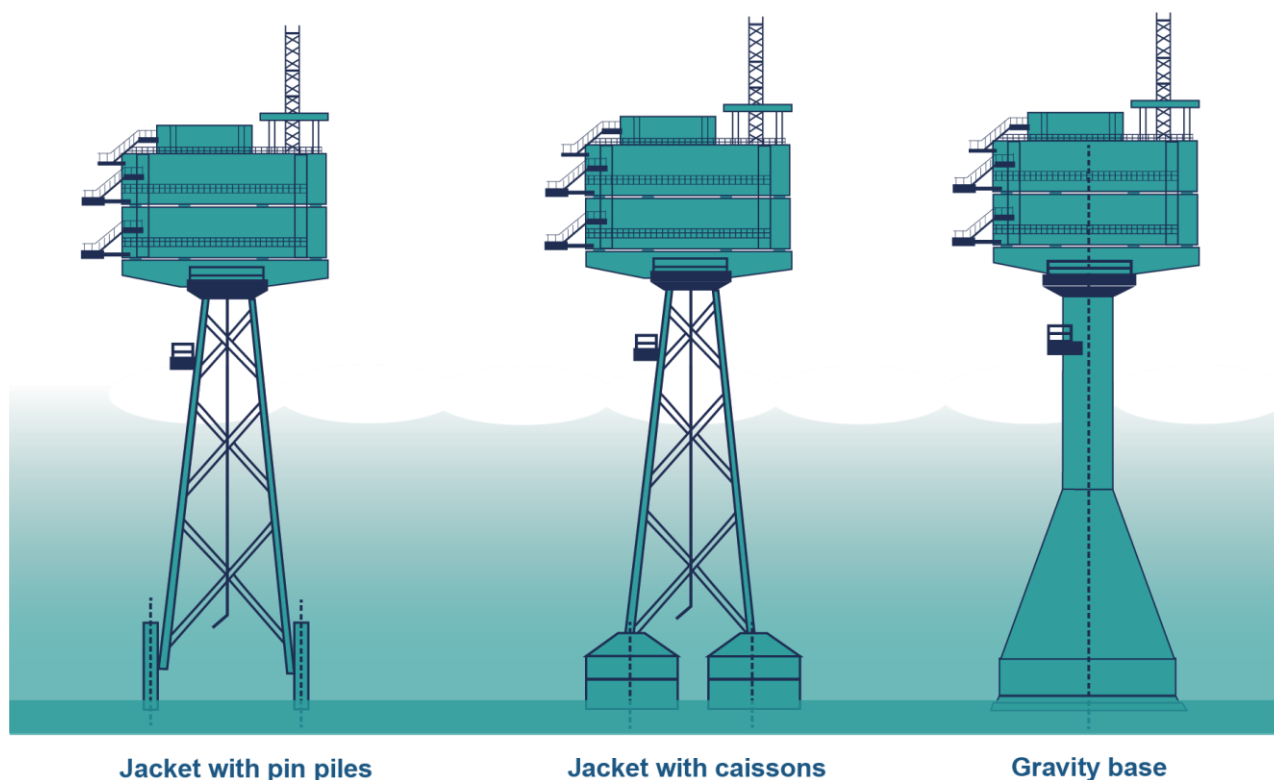
- 2.2.3.17 Depending on at-sea risks and hydrodynamic conditions, it is likely that the static sections of the array cables will be protected by burial, typically by ploughing, jetting or trenching, depending on the seabed conditions along the array cable routes. Cables for which optimal burial depths are not achievable may be subject to secondary protection measures such as (but not limited to) rock placement or installation of concrete mattresses.

Offshore platforms

Substation platforms

- 2.2.3.18 The WTGs will be arranged in a suitable configuration for the site (e.g. strings, stars or loops). The WTGs will connect (via the array cables) to a substation platform located within the OAA. The number of substations required will depend on the chosen technology and the site layout. The substations may be interconnected by link cables to transmit the combined output to a common export location, and for redundancy.
- 2.2.3.19 The substations will house the main electrical equipment, auxiliary, controls and operational systems necessary. The offshore substations may also include a helideck.
- 2.2.3.20 It is expected that the substation platform foundations that will support the topside equipment will be fixed platforms. This is due to the current technology maturation associated with the electrical export system and risk to security of supply. The fixed design concept types being considered are shown in **Plate 2.7**. However, technology development to suit floating substations is underway and as such a floating structure cannot be ruled out at this time. See **Plate 2.3** and **Plate 2.5** for floating unit concepts and mooring concepts, which will apply for a floating substation.

Plate 2.7 Illustration of fixed foundation types



- 2.2.3.21 Prior to installation, it may be necessary to prepare and level the seabed by activities such as dredging/pre-sweeping of sandwaves, ground reinforcement or the application of a filter layer of rock. Debris and boulder removal may also be required, and the vicinity will have to be cleared of any potential UXO targets.
- 2.2.3.22 Foundations will be fabricated offsite at a portside facility and transported to site for installation. This is likely to require the use of specialist heavy lift vessels, and pin piling may be required to secure (for example) jacket structures to the seabed.
- 2.2.3.23 Once the foundations are installed, additional scour protection may be required. This is typically in the form of a circular rock berm laid around the foundations, although other options may be considered.
- 2.2.3.24 Topside units or modules may be lifted into place once the foundations are secured, also using heavy lift vessels or barges.

Accommodation platforms

- 2.2.3.25 The operation and maintenance (O&M) strategy for the wind farm may include the use of a permanent accommodation platform within the OAA, to allow access to the WTGs and substations for prolonged periods.
- 2.2.3.26 If an additional structure(s) are required, it is expected that the size and footprint of the structure will be smaller than, or equivalent in size to, the offshore substation platforms. Since the water depth will be similar, the height, and consequently breadth, of the substructure will also be similar.
- 2.2.3.27 Topside equipment and modules will be different to other functional platforms, in that the focus will be around accommodation, welfare, and housekeeping, as well as safety equipment and facilities. The accommodation platform may include a helideck, and suitable craft for travelling between the accommodation platform and the other structures will also need to be berthed or housed.

Reactive compensation platforms (HVAC only)

- 2.2.3.28 If HVAC transmission technology is used, the length of the offshore cable route may require the installation of reactive compensation equipment approximately midway between the OAA and grid connection (c. 37.5km from shore).
- 2.2.3.29 Such equipment would need to be mounted on one or more offshore substation platform structure(s) (albeit reduced in size from the offshore substation(s)) located well outside the OAA. The offshore export cables would connect into the platform, and further cables would continue from the platform to the landfall site(s).
- 2.2.3.30 If reactive compensation is required, it is expected that the size and footprint of the platform structure(s) will be smaller than, or equivalent in size to, the offshore substation platforms. Being located closer to shore will mean that the water is shallower than at the OAA, and the height, and consequently breadth, of the substructure could also be reduced.
- 2.2.3.31 Installation activities will be comparable to those described for the offshore substation platforms.

Offshore export cables

- 2.2.3.32 Electricity from the offshore substation(s) will be transmitted via offshore export cables to the transition joint bays located onshore at the landfall(s). The voltage, number and size of

cables required will depend on the design selection of transmission technology and the installation conditions determined along the export route. The worst-case envelope is considered here, which is the HVAC option as it involves the greatest number of cables (3-core) to be installed.

- 2.2.3.33 The proposed indicative design envelope for key characteristics of the offshore export cables is summarised in **Table 2.2**.
- 2.2.3.34 Additional cables for communications, controls and (potentially) condition monitoring will be either strapped to or embedded within the export cable.
- 2.2.3.35 The cables will be installed in several lengths using a large capacity cable lay vessel. The sections will then be jointed together and deployed to the seabed.
- 2.2.3.36 The cable corridor width required is driven by factors including maintenance access requirements, which are in turn related to water depth. As such, the basis for assessment for the offshore cable installation corridor working width will be confirmed based on a refined design envelope once a decision is reached on the use of HVDC or HVAC cabling in the marine environment.
- 2.2.3.37 Prior to installation, seabed preparation measures will be applied over the export cable corridor (EEC), including (as applicable) pre-sweeping of sandwaves, debris and boulder clearance, UXO clearance, pre-lay grapnel runs and Out of Service cable clearance.
- 2.2.3.38 The offshore export cables will be protected by burial, typically by ploughing, jetting or trenching. Several different approaches to burial are possible: a pre-lay trench can be excavated into which the cable is installed; simultaneous lay and burial is achievable using a suitable plough; or various types of post-lay burial equipment can be used.
- 2.2.3.39 Sections of the export cables for which optimal burial depths are not achievable may be subject to secondary protection measures such as (but not limited to) rock placement or installation of concrete mattresses.
- 2.2.3.40 Linear seabed assets (cables and pipelines) that are crossed by the offshore export cable route will generally be protected at the crossing point by a separation layer or appurtenance and then stabilised post-installation of the crossing cable by rock berm or concrete mattresses. The crossing design applied must be agreed in advance with the existing asset owners, with whom a crossing agreement will be agreed.

Landfall

- 2.2.3.41 The landward end of the landfall is the transition joint bays, which are located above MHWS. The transition joint bays are the locations where the offshore export cables connect with the onshore export cables (which are of different construction).
- 2.2.3.42 Depending on the characteristics of the site, different construction techniques may be used, the two most common of which are open cut / cut-and-fill construction (digging a trench in which the export cable is laid) and HDD (tunnelling a hole through which the export cable is pulled). Depending on the site characteristics and the final landfall selection/design taken forward, a cofferdam construction may also be considered.
- 2.2.3.43 The final landfall location(s) have not yet been determined, however three areas have been identified along the Aberdeenshire coastline where the landfall site(s) could be located, as shown on **Figure 2.1**.
- Scotstown – south of St Fergus Gas Terminal;
 - Lunderton – north of Peterhead; and

- Sandford Bay – south of Peterhead.

- 2.2.3.44 The construction method for the landfall(s) has yet to be determined, and will be specific to the site chosen, its geology, topography and other constraints. Typically, either open cut / cut-and-fill construction or trenchless construction (e.g. HDD) will be used. It is possible that a cofferdam and/or sheet piling may be required, depending on site characteristics and landfall design.
- 2.2.3.45 For HDD, each export cable will generally require a separate duct and therefore a separate bore. The process involves drilling a pilot hole between the entry (onshore) and exit (offshore) points, which is then enlarged by a larger reaming tool passing through the hole. A duct is then pulled through the created channel, through which the cable will subsequently be installed.
- 2.2.3.46 The drill entry point is typically located within an onshore construction compound, exiting at a targeted location on the shore or on the seabed. The length of the HDD will depend on factors such as water depth, seabed topography, shallow geology / soil conditions and environmental constraints.
- 2.2.3.47 The HDD offshore exit pits (one per bore) will be spaced some distance apart, typically 20-50m depending on local environmental and technical constraints. A shallow water post-lay burial solution may be required to bury the cables in the area between the exit pit and deeper waters where normal offshore cable burial tools can be deployed.
- 2.2.3.48 Open-cut / cut-and-fill construction by contrast, requires the excavation of a trench through the shoreline into which either the cable is pulled directly, or a duct is installed for later cable pull-in.
- 2.2.3.49 Transition joint bays will be constructed above MHWS at the landfall(s) to house the joints connecting the offshore export cables and the onshore export cables. Each transition joint bay is a large, concrete-lined, excavated pit in which the component cable cores are split out for jointing.
- 2.2.3.50 The onshore construction compound, located above MHWS, at the landfall(s) will be temporary in nature and the site will be reinstated after completion of the Project construction phase. An inspection chamber or equivalent permanent access arrangement may be left in place at the transition joint bays.
- 2.2.3.51 Establishing access to the landfall construction site(s) may require construction of temporary access routes and/or permanent reinforcement of existing roadways.
- 2.2.3.52 The proposed indicative design envelope for key characteristics of the landfall is summarised in **Table 2.3** Indicative landfall(s) design envelope.



- Project Boundary
- Export cable survey corridor zone
- Landfall Optioneering Zones**
- Scotstown
- Lunderton
- Sandford Bay



	ddmm/yyyy	--	--	--	--
2	24/05/2024	LT	AMc	MR	LG
1	04/12/2023	LT	AMc	MR	LG
REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER

WSP DRAWING NUMBER 808368-WEIS-IA-SC-FG-H3-68

MarramWind DRAWING NUMBER MAR-GEN-CNS-MAP-WSP-000001

DATUM	ETRS 89	PROJECTION	UTM Zone 30N
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PROJECT TITLE
MarramWind Offshore Wind Farm

DRAWING TITLE
Figure 2.1 Project boundary and landfall zones

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World Ocean Base: Esri, GEBCO, Garmin, NaturalVue

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MarramWind
A joint venture between ScottishPower and Shell UK

Table 2.3 Indicative landfall(s) design envelope

Landfall component	Design envelope
Maximum width of HDD / open-cut trenching corridor	Maximum corridor width up to 390m (to meet installation and jointing requirements and subject to site conditions).
Number of cable trenches / ducts	Up to 8.
Number of transition joint bays - typically concrete-lined pits	Up to 8.
Typical transition joint bay dimensions	5m x 10m (approximately).
Temporary landfall construction compound dimensions	175m x 100m (approximately).

Onshore infrastructure

2.2.3.53 The indicative Project design envelope for the onshore infrastructure is summarised in Table 2.4.

Table 2.4 Indicative onshore infrastructure design envelope

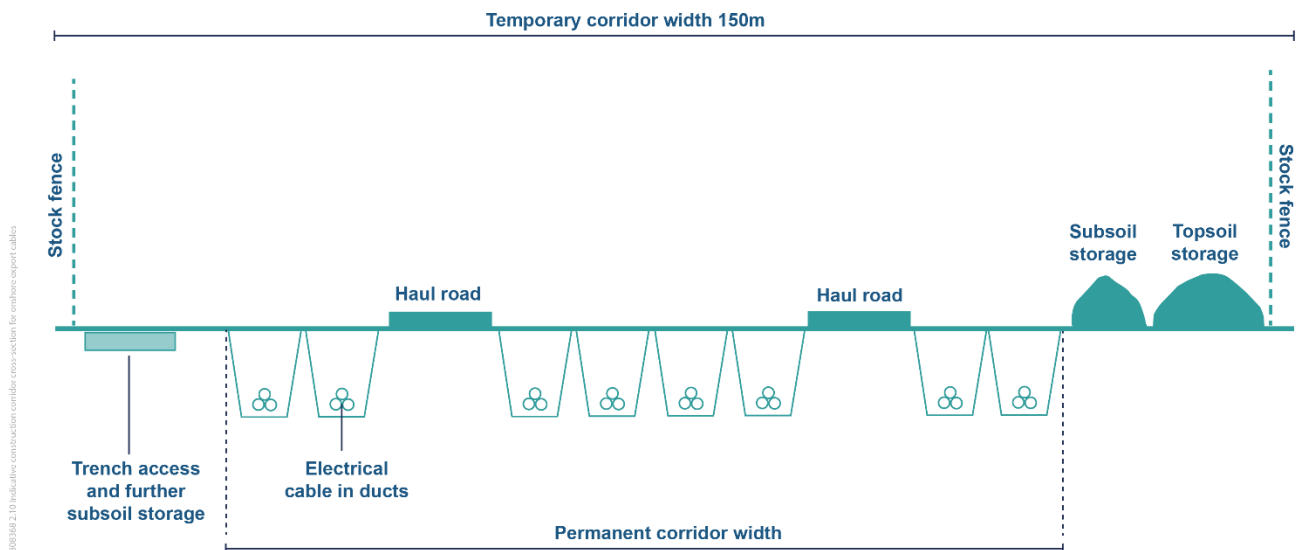
Onshore infrastructure component	Design envelope
Number of onshore export cables	Up to 24 arranged in 8 trenches of up to 3 cables in each.
Installation method	Cut-and-fill; trenchless methods such as HDD, where necessary, to cross sensitive features such as watercourses, roads and railways.
Maximum number of trenches	Up to 8.
Temporary onshore export cable construction corridor width	Approximately 150m (to meet jointing requirements and subject to site conditions).
Target cable burial depth	Typically 1-2m, subject to ground conditions.
Number of onshore substation(s) sites	1
Estimated substation permanent footprint	Up to 16ha.
Estimated substation (and converter) height	Up to 32m.

Onshore infrastructure component	Design envelope
Estimated overall substation footprint including up to 4 hectares (ha) required for a temporary construction compound.	Up to a total of 20ha (3GW).
Distance from the onshore substation(s) site to SSEN Netherton Hub Substation – the grid connection location	Up to 3km distance for the underground 400kV cable connecting the onshore substation(s) to the grid connection point.

Onshore export cable corridor

- 2.2.3.54 Work is currently being undertaken to identify an onshore cable corridor(s) and site for the Project onshore substation(s) within the Project Boundary area, as shown on the **Figure 1.1**.
- 2.2.3.55 Underground cables will be used to connect from the landfall transition joint bays to the Project onshore substation(s). The overall length and route of the of the onshore export cable corridor (ECC) has yet to be determined as both the location of the landfall site(s) and onshore substation(s) site remain to be finalised. As part of the ongoing iterative design and pre-application consultation processes the length of the onshore export cable route will be confirmed, with the identified route taking account of environmental, economic and engineering considerations.
- 2.2.3.56 **Plate 2.8** shows the indicative onshore cable configuration and construction corridor cross-section.

Plate 2.8 Typical construction corridor cross-section for onshore export cables



- 2.2.3.57 The onshore export cables will be installed in sections, the maximum length of which will be limited by the volume and weight that can be transported by road. Jointing bays will therefore be required at intervals along the route to enable the cable installation and connection process. The jointing bays are subsurface structures with an associated link box located at or above ground level. These link boxes enable electrical checks and testing to be carried out on the cable system during operation.
- 2.2.3.58 The standard trench cable sections will typically be installed by standard cut-and-fill techniques, where a trench section of requisite length is excavated before the corresponding cable ducts are lowered into the trench. Once all ducts are in the trench, it is backfilled using the spoil from the prior excavation (and / or special backfill material if required) and reinstated accordingly. Further safety measures such as warning tape and protective tiles are installed above the cable ducts to flag the presence of the cable to anyone digging in the area to ensure avoidance. The cables are then pulled through and into the ducts by a winch temporarily installed at the far end.
- 2.2.3.59 Where it is necessary to cross sensitive features, such as watercourses, roads and railways crossings, trenchless construction methods such as HDD will be used to install ducts under the crossed feature. The cables are then pulled through via entry and exit pits. Additional protective measures may also be required, such as concrete slabs or casing around the cables or ducts.
- 2.2.3.60 During construction, a temporary construction corridor will be defined. This will incorporate temporary working areas to provide suitable access and allow for safe construction. In particular, the temporary construction corridor will provide access to construction traffic, and space for cable assembly, cable trench excavation, and storage space for excavated topsoil and subsoil in separate stockpiles. It is expected that the width of the cable construction corridor for surface trenching will be approximately 150m and will be confirmed as part of the envelope presented within the RIAA. At any sensitive features identified along the route, the working width of the temporary construction corridor will be reduced as far as practicable to avoid or minimise potential environmental effects. The temporary onshore export cable construction corridor may also require widening beyond the standard width in predetermined locations to allow sufficient space for access at crossings, avoidance of obstacles, directional drilling, and the application of trenchless techniques. On completion of construction, the export cable construction corridor land will be reinstated with the haul

road, any soil storage and stock fences reinstated. Where underground cables are installed, a permanent easement will be agreed to enable access for inspections and maintenance during operation of the Project.

- 2.2.3.61 In the event that it is not possible to install all onshore cables in a single operation, ducts may be installed in the trenches in the initial construction phase to allow the cables to be drawn through the ducts as later phases of the Project are brought forward. This approach would be intended to remove the need to undertake repeat excavations along the route. For the purposes of HRA Screening, the need to undertake repeat excavations to account for each Project phase is considered to be the worst case. On completion of cable installation, the haul road, and any construction compounds will be removed, and the cable corridor will be reinstated.

Onshore substation(s)

- 2.2.3.62 The onshore substation(s) will house the electrical components required to ensure the offshore wind farm export power is compliant with UK Grid Code (NGESO, 2023) for connection to the SSEN Netherton Hub substation. The substation(s) will either be a HVAC substation with internal and external high voltage (HV) equipment or a HVDC converter station made up of converter buildings and external HV equipment, or a combination of both. All options will either incorporate Gas Insulated Switchgear or Air Insulated Switchgear. The onshore substation design specifications vary between HVAC and HVDC infrastructure. The indicative Project design envelope for the onshore infrastructure summarised in **Table 2.4** represents the worst case for the purposes of HRA Screening.
- 2.2.3.63 The overall permanent site footprint for an onshore substation(s) site for a up to 3GW connection is anticipated to be up to 16ha. The exact location of the substation will be confirmed as the detailed design, the EIA process and landowner discussions progress. The final size of the onshore substation(s) site is expected to be optimised and will be subject to further ongoing design refinements.
- 2.2.3.64 Outside the anticipated permanent footprint of the onshore substation(s) boundary, a wider construction area will be required for construction equipment, welfare facilities, laydown and storage. An additional construction area of approximately 4ha is identified for construction of a up to 3GW onshore substation(s) in the vicinity of Peterhead, in addition to the permanent footprint, making a total construction area of 20ha.
- 2.2.3.65 Construction works for the onshore substation(s) site will include creation of site access, site preparation works, installation of underground services and foundations, construction of the building(s), installation and commissioning of electrical equipment, installation of perimeter fencing, and landscaping. This temporary construction compound area will be reinstated after construction is complete.
- 2.2.3.66 The proposed indicative design envelope for key characteristics of the onshore substation(s) is summarised in **Table 2.4**.

Grid connection cables

- 2.2.3.67 An additional section of the onshore export cable route will run from the onshore substation(s) site to the SSEN Netherton Hub Substation grid connection point. The transmission type and voltage of these cables will be compatible with grid requirements at the grid connection point.
- 2.2.3.68 The length and route of the connection will depend on the location of the onshore substation(s) site, but the maximum length will be up to 3km in line with the onshore substation(s) site search area.

- 2.2.3.69 Installation methods will be the same as those used for the onshore export cables. It is expected that the width of the cable construction corridor for surface trenching will be approximately 150m.

Construction phase

- 2.2.3.70 Given the scale of the Project, the construction may involve phased installations of infrastructure components within the onshore and offshore environments for the duration of the applicable construction phases.
- 2.2.3.71 The phased construction of the Project is anticipated to be chronological, with the infrastructure necessary for each phase installed sequentially. As more than one landfall may be required to accommodate the cabling necessary for the Project as a 3GW project overall, the current worst-case scenario for the purposes of the HRA Screening is the construction of up to three separate landfalls sequentially with the associated export cables installed at the same time as the corresponding landfall. The project's intent is to utilise one landfall location but retains the worst case due to the competitive landscape, in the event the project cannot secure sufficient land at a single site. The timing would be appropriate for each of the Project's three phases, which may result in intermittent construction including at the landfall sites. All construction works will be within the Project boundary presented in **Figure 1.1**. Project design work is ongoing to determine the details of each phase, which will be confirmed as the Project progresses.
- 2.2.3.72 The total construction phase duration for the offshore infrastructure within the OAA is currently anticipated to be between 8 to 12 years, but this timeline is likely to be subject to change as details emerge regarding the Project phasing design and the supply chain availability. This indicative programme predominantly relates to the build out of the array as the installation of the export cable would require a significantly shorter duration.
- 2.2.3.73 The total construction duration for the onshore infrastructure is likely to be up to 2-3 years and would occur in parallel with the offshore infrastructure construction period. This may be longer in duration from start to finish due to the potential phased installation of the onshore infrastructure and potential for intermittent construction activities.

Operational phase and maintenance

- 2.2.3.74 The O&M strategy will be finalised once the technical specifications of the Project are confirmed, including the WTG model, floater, electrical transmission infrastructure and final Project layout.
- 2.2.3.75 Both preventative and corrective maintenance activities will be undertaken. Offshore O&M services would typically be undertaken via supply and crew vessels but may also be undertaken via helicopters / specialised vessels. Offshore accommodation may be provided via an accommodation platform.
- 2.2.3.76 During the operation of the onshore cable, periodic testing of the cable is likely to be required (typically every two to five years). This will require access to the link boxes along the onshore export cable route, which will involve attendance by light vehicles such as vans. The vehicles will gain access using existing field accesses as agreed with landowners to reach the relevant sections of the cable.
- 2.2.3.77 The onshore substation(s) is likely to be designed to be unmanned during operation, however some maintenance visits may be required. This would typically involve a very small number of vehicles, typically light vans. Infrequently, equipment may be required to be replaced, then the use of an occasional heavy goods vehicles may be utilised, depending on the nature of the repair.

- 2.2.3.78 The lease agreement allows the Project to remain until 2080, which would be the maximum operational lifetime under the terms of the lease.

Decommissioning phase

- 2.2.3.79 The requirements for decommissioning are detailed in sections 105 to 114 of the Energy Act 2004 (as amended) and associated offshore renewable energy decommissioning guidance (Scottish Government, 2022). Under the terms of the Act, developers of offshore renewable energy projects are required to develop a costed decommissioning programme for submission to, and approval by, Scottish Ministers.
- 2.2.3.80 A decommissioning plan and programme will be developed prior to construction and updated during the operational phase of the Project to account for any changes to industry best practice, relevant legislation and policy, or developments in technology.
- 2.2.3.81 Decommissioning of the Project is anticipated to involve the removal of all offshore infrastructure above the seabed, including floating platform substructures and associated mooring lines. Electrical cables could be removed or left in-situ offshore and onshore to minimise navigational safety risks (offshore only) and environmental effects.
- 2.2.3.82 The onshore substation(s) will be removed, and the site reinstated.
- 2.2.3.83 The decommissioning works are likely to be carried out in reverse to the sequence of construction works and will involve similar levels of equipment. Further detail will be provided in the decommissioning plan.

2.3 Consideration of alternatives

2.3.1 Iterative design process

- 2.3.1.1 The RIAA will provide further detail on the iterative design process, including how the design, routes and locations have evolved over time and any refinements that take place. The optioneering methodology and findings will be consulted on during the pre-application process. Any refinements made will consider environmental sensitivities and the application of the mitigation hierarchy. Any responses to stakeholder feedback received as part of the pre-application consultation or outcomes due to grid developments will also be described. Alternative Project infrastructure that has been considered and discounted will also be described in the RIAA.

2.3.2 Offshore wind farm area and grid connection

Overview

- 2.3.2.1 The location of the OAA and the NETS connection point dictate where the connecting electrical network will start and end. A description of the offshore wind farm area and a summary of the optioneering and site selection exercise undertaken to date and subsequent next steps in relation to the landfall(s), as well as for the connecting offshore and onshore ECC and onshore substation(s) is provided below.
- 2.3.2.2 The location of the NETS connection point is determined for the Project by National Grid ESO. As a result, no alternatives can be considered so this element is not discussed further.

Offshore wind farm area

- 2.3.2.3 The Applicant has been awarded an exclusivity agreement for lease, or Option Agreement to develop offshore wind energy generating infrastructure within the NE7 Plan Option. The OAA and proposed offshore wind farm array area are, at this stage of development and in advance of finalisation of an agreed site layout, spatially identical to the NE7 Plan Option.
- 2.3.2.4 The NE7 Plan Option was developed and selected through an iterative constraints analysis exercise undertaken by the Marine Scotland (now named 'Marine Directorate') on behalf of Scottish Ministers. It identified key constraints and was supplemented by extensive consultation, which was used to support the Scottish Ministers in identifying and refining the Plan Options.
- 2.3.2.5 This process saw 24 areas of search evolve into 17 Draft Plan Options, which was later reduced to a short-list of 15 Plan Options that were subject to further refinement. Through this process the final NE7 Plan Option was subject to amendments to its boundary and the area was reduced by 34%. This was undertaken to avoid the areas of the highest levels of fishing activity, identified via consultation and analysis (Scottish Government, 2020b).
- 2.3.2.6 The final NE7 Plan Option was identified by the Scottish Government as a seabed area that met key policy objectives for the identification of opportunities for commercial-scale offshore wind development, whilst recognising that some potential adverse environmental effects could remain.
- 2.3.2.7 The Sectoral Marine Plan (Scottish Government, 2020a) highlights the “*key factors to development within the North East region are:*”
- *risks to bird species, including collision risk and displacement, as well as potential impacts to birds on migratory pathways;*
 - *potential impacts on commercial fishing;*
 - *potential impacts on marine mammal receptors;*
 - *potential impacts on migratory fish species;*
 - *potential impacts on benthic habitat and species; and*
 - *potential cost impacts and associated navigation risk from diverting key commercial shipping routes.”*
- 2.3.2.8 The evidence-base to support the decision-making on NE7 was supported by a full Sustainability Appraisal (SA) undertaken by Marine Directorate in consultation with stakeholders. This SA incorporated a plan-specific Strategic Environmental Assessment, which identified the likely significant impacts of the Sectoral Marine Plan and proposed reasonable alternatives to them (Scottish Government, 2019).
- 2.3.2.9 The SA also involved a Plan-level HRA to assess the implications of the plan for Designated sites in view of the sites' conservation objectives. The HRA Report concluded that NE7 was amongst those Plan Options for which adverse effects on Designated site integrity could be ruled out. While NE7 consequently represents an alternative site for development with a reduced likelihood of impacts to Designated site integrity, the HRA Report identified mitigation measures that should be applied across all Plan Options. These mitigation measures, as they apply to NE7, will be discussed in detail in the RIAA.
- 2.3.2.10 On balance, the findings of the SA indicated that the NE7 Plan Option is a favourable site for offshore wind development when considered alongside the alternative Plan Options identified by the constraints analysis exercise.

- 2.3.2.11 It is recognised that the Scottish Government, through Marine Directorate – Licensing and Operations Team (MD-LOT), is currently reviewing its initial Sectoral Marine Plan (SMP) for offshore wind as part of an ongoing Iterative Plan Review (IPR) process. This review encompasses the consideration of conclusions from the offshore wind SMP HRA. Additionally, MD-LOT and Crown Estate Scotland are progressing with a new leasing auction and developing a new SMP for Innovation and Targeted Oil and Gas (INTOG) decarbonisation projects. MD-LOT will conduct an HRA for the INTOG SMP. The expectation is that both the offshore SMP and INTOG SMP will be consolidated into a single SMP, along with an associated overarching HRA.
- 2.3.2.12 **Figure 1.1** shows the Project's OAA for the wind farm array, which corresponds to the NE7 Plan Option boundary.

2.3.3 Optioneering and site selection

- 2.3.3.1 The offshore ECC will be routed between the NE7 OAA and the landfall location(s). A comprehensive route planning and site selection exercise is being conducted to identify environmentally, technically, and economically acceptable landfall(s), as well as a connecting offshore and onshore ECC and substation site options. This takes into consideration the anticipated competition for land use from other offshore wind farms being developed in the region. Current uncertainty around competition for land use is a key driver for the need for optionality in the siting of Project infrastructure. MarramWind Limited is exploring options for spatial co-ordination with other Projects via the Peterhead Developers Forum.
- 2.3.3.2 With regards to the landfall location(s), the initial search area for the landfall(s) extended from Troup Head to Black Dog Beach – a total of 70km of coastline. This stretch of land was chosen as it provided a range of options for landfall locations, while minimising the length of the cable corridor and reducing potential environmental effects and technical issues.
- 2.3.3.3 Key environmental and technical information was reviewed in order to refine the extent of the search area. Specific consideration has been given to the presence of:
- the dune and grassland communities surrounding the freshwater Loch of Strathbeg SPA and the Troup, Pennan and Lion's Heads SPA, which covers 16km of coastline around Troup Head; and
 - the combined extent of the Buchan Ness to Collieston Coast SPA and the Ythan Estuary, Sands of Forvie and Meikle Loch SPA, which stretches 44km along the east-facing coast around Black Dog Beach.
- 2.3.3.4 These constraints narrowed down the search area further to the stretch of coast between Sandhaven on the north coast (west of Fraserburgh) to Sandford Bay (south of Peterhead) and further allowed the identification of a number of potential zones in which landfalls could be located.
- 2.3.3.5 Following confirmation of the onshore grid connection point to the proposed SSEN Netherton Hub Substation to the west of Peterhead town, an appraisal of these zones against environmental, consenting and technical considerations was undertaken. This has enabled the Applicant to narrow down three areas along the Aberdeenshire coastline where the landfall site/s could be located, as shown on **Figure 2.1**.
- Scotstown – south of St Fergus Gas Terminal;
 - Lunderton – north of Peterhead; and

- Sandford Bay – south of Peterhead.

2.3.3.6 Work is currently being undertaken to identify a landfall site(s), a site for the Project onshore substation(s) and the onshore cable corridor connecting the landfall site(s) to the onshore substation(s) and from the onshore substation(s) to the SSEN Netherton Hub Substation. These will be identified based on a number of factors, including the results of environmental assessments, technical constraints, the land available and the cable route length. The views of consultees (including Scottish Environment Protection Agency, Historic Environment Scotland, NatureScot, and Aberdeenshire Council) and the public are important for informing the site selection exercise. As such, stakeholders will continue to be engaged during the optioneering and site selection process, through formal consultation exercises and informal public consultation events, landowner liaison and other stakeholder engagement on the emerging and final Project design.

3 The Habitats Regulations Appraisal Process

3.1 Legislative context

- 3.1.1.1 Council Directives 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora ('the Habitats Directive') and 2009/147/EC on the conservation of wild birds ('the Birds Directive') provided the designation of sites for the protection of certain species and habitats. The sites designated under these Directives are collectively termed European sites and form part of a network of protected sites across Europe, originally known as the Natura 2000 network.
- 3.1.1.2 Since January 2021, the Natura 2000 network is now referred to in the UK as the National Sites Network. Any references to Natura 2000 in the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 ('the 2019 Regulations') and in guidance now refer to the new National Site Network. For the purposes of this HRA Screening Report, they are referred to collectively as 'Designated sites'.
- 3.1.1.3 In Scottish territorial waters, the Habitats Directive was initially translated into specific legal obligations by the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and the Conservation of Habitats and Species Regulations 2017 in respect of reserved matters. The Conservation of Offshore Marine Habitats and Species Regulations 2017 are also relevant in Scottish waters more than 12 nautical miles (nm) from land. These regulations are together referred to as the Habitats Regulations.
- 3.1.1.4 The Conservation of Habitats and Species Regulations 2017 (as amended) are one of the pieces of domestic law that transposed the land and marine aspects of the Habitats Directive (Council Directive 92/43/EEC) and certain elements of the Wild Birds Directive (Directive 2009/147/EC) (known as the Nature Directives) into UK law. The changes are made by the Conservation of Habitats and Species (Amendment) (European Union (EU) Exit) Regulations 2019. In accordance with EU Exit guidance issued by the Scottish Government the term "*European site*", "*European marine site*", and "*European offshore marine site*", have been retained, as have "*Special Area of Conservation*" (SAC) and "*Special Protection Area*" (SPA) to refer to sites protected in European Member States, Scotland and the rest of the UK (Scottish Government, 2020c). However, where these sites are located in the UK, they now form part of the National Site Network, on land and at sea, including both the inshore and offshore marine areas in the UK. The National Site Network includes existing SACs and SPAs, as well as any new SACs and SPAs designated under these Regulations. Scottish Government policy affords the same level of protection to proposed SACs and SPAs that have been approved by Scottish Ministers for formal consultation.
- 3.1.1.5 The UK Government is also a signatory to the Convention on Wetlands of International Importance 1972 ('the Ramsar Convention'). The Ramsar Convention provides for the listing of wetlands of international importance. UK Government policy is to give sites listed under this convention ('Ramsar Sites') the same protection as Designated sites in the National Site Network. NPF4 acknowledges the significance of Ramsar Sites within Policy 4 – Natural Places. It is of note that Policy 4 also extends protection for a proposed Special Area of Conservation (pSAC) or proposed Special Protection Area (pSPA) as if they were designated.

- 3.1.1.6 For the purposes of this HRA Screening Report, in line with the Habitats Regulations and relevant Government policy, the terms 'Designated sites' and National Site Network include SACs, candidate SACs ('cSAC'), possible SACs ('pSAC'), SPAs, potential SPAs ('pSPA'), Sites of Community Importance ('SCI'), listed and proposed Ramsar Sites and sites identified or required as compensatory measures for adverse effects on any of these sites.
- 3.1.1.7 Each Designated site is designated as a SAC, classified as an SPA, or listed as a Ramsar Site in respect of specific 'qualifying features'. These 'qualifying features' (i.e. habitats, mosaics of habitats, species or assemblage of species, and combinations of these) are the reasons for which the site is to be protected and managed for conservation purposes.
- 3.1.1.8 For SPAs the qualifying features are the birds for which the SPA is classified, under either:
- Article 4(1) rare and vulnerable species, species in danger of extinction or requiring particular attention because of their habitat needs, listed in Annex I of the Birds Directive; or
 - Article 4(2) regularly occurring migratory species (e.g. on passage or over-wintering or an internationally important assemblage of birds) not listed in Annex I.
- 3.1.1.9 The qualifying features of SACs are the habitats listed in Annex I of the Habitats Directive and the species listed in Annex II of the Directive. The Habitats Regulations include powers to amend the annexes to the Habitats and Wild Birds Directives (to the extent that they apply to the Habitats Regulations) and schedules of the Habitats Regulations. In relation to the 1994 Regulations, these powers are for the Scottish Ministers. In relation to the Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017, these powers are for the Secretary of State. Such amendments add species listed in Annex IV of the Habitats Directive where their natural range includes any area in Scotland (on land and in inshore and offshore waters) and reflect advances in technology and scientific understanding. This provides equivalent powers to those held by the European Commission.
- 3.1.1.10 The 'qualifying features' of Ramsar Sites are the list of Criteria as set out in the Convention on Wetlands of International Importance (Ramsar Convention). All receptors that are qualifying features of Designated sites (Natura 2000/Ramsar Sites) or support such features, and which may potentially be affected by the Project have been considered within this HRA Screening process.
- 3.1.1.11 The Habitats Regulations define the process for the assessment of the implications of plans or projects on Designated sites. This process is termed the Habitats Regulations Appraisal in Scotland.

3.2 Technical guidance

- 3.2.1.1 Technical guidance that has been used during the development of the HRA Screening Report includes:
- NatureScot Habitats Regulations Appraisal (HRA) Guidance (NatureScot, 2024a).
 - NatureScot Maintain or Restore Objectives – Guidance for Habitats Regulations Appraisals (HRA) (NatureScot, 2024b).
 - NatureScot European Site Casework Guidance: How to consider plans and projects affecting Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) (NatureScot, 2022).

- NatureScot Guidance Note - The handling of mitigation in Habitats Regulations Appraisal – the People Over Wind Court of Justice of the European Union (CJEU) judgement (NatureScot, 2020).
- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (European Commission, 2001).
- SNH HRA guidance document 'HRA of Plans. Guidance for Plan-making Bodies in Scotland' (David Tyldesley and Associates, 2015).
- Guidelines on the Assessment of Transboundary Impacts of Energy Developments on Natura 2000 Sites outside the UK (Department of Energy and Climate Change, 2015).
- HRA on the Moray Firth: A Guide for developers and regulators (Scottish Natural Heritage, 2018a).
- HRA on the Firth of Forth: A Guide for developers and regulators (Scottish Natural Heritage, 2018b).
- Marine Scotland Consenting and Licensing Guidance: For Offshore Wind, Wave and Tidal Energy Applications (Scottish Government, 2018).
- EU Guidance on wind energy on wind energy development in accordance with EU nature directives (European Commission, 2020).
- Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects (Southall *et al.*, 2019).
- Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (JNCC, 2020).

3.3 Overview of the Habitats Regulations Appraisal Process

- 3.3.1.1 In cases where a proposed plan or project is not directly connected to the management of a Designated site, and the developer or proposer cannot demonstrate that it will not impact the qualifying interest features of a Designated site (whether the plan or project is situated within the site, adjacent to it, or regardless of its location), the Habitats Regulations mandate the competent authority to conduct an AA if it cannot be shown that there is no LSE. The HRA is generally acknowledged as a four-stage process aligned with the language of Article 6(3) of the Habitats Directive (see **Box 1**). The outcome at each stage of this process dictates the necessity for the subsequent stage and establishes its scope. Further details on these stages are provided below and in various guidance documents referenced in **Section 3.2**.

Box 1 Stages of Habitats Regulations Appraisal

Stage 1 – HRA Screening (this Report):

This stage identifies the likely impacts of a project or plan upon a Designated site, either alone or 'in combination' with other projects or plans and considers whether these impacts are likely to be significant. It is important to emphasise that the responsibility for providing evidence lies in demonstrating, based on objective information, that there will be no LSE. If the impact of a project or plan may cause LSE, or the outcome is not known, this would trigger the need for AA (NatureScot, 2024a).

Stage 2 – Appropriate Assessment:

The Habitats Regulations place an obligation on 'competent authorities' to carry out an Appropriate Assessment of any proposal likely to affect a Designated site before any decision to give consent. This relates to any plan or project that is not directly connected with or necessary to the [conservation] management of a Designated site and which could significantly affect that site (either alone or in combination with other known plans or projects). The competent authority should seek advice from NatureScot and not approve an application that would have an adverse effect on a Designated site, except under very tightly constrained conditions that involve decisions by the Scottish Ministers. The competent authorities in the case of the Project will be Aberdeenshire Council and MD-LOT (on behalf of Scottish Ministers).

Stage 3 and 4 – HRA Derogation

If the competent authority cannot establish, with reasonable scientific certainty, that a plan or project, either individually or in-combination, will not negatively impact site integrity, consent should not be granted unless the project fulfils the following criteria:

- There are no viable alternative solutions that would cause less harm or avoid damage to the site (Stage 3 – Assessment of Alternatives).
- The proposal must be carried out for Imperative Reasons of Overriding Public Interest (IROPI) (Stage 4 – Assessment of IROPI).
- Compensation measures are implemented to ensure that the overall coherence of the network of Designated sites is preserved.

3.3.1.2 With respect to Stage 2, the integrity of a Designated site relates to the site's conservation objectives and has been defined in guidance as "*the coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated*" (NatureScot, 2024b). An adverse effect on integrity, therefore, is likely to be one that prevents the site from making the same contribution to favourable conservation status (FCS) for the relevant qualifying feature as it did at the time of designation. The HRA Screening process uses the threshold of LSE to determine whether effects on Designated sites should be the subject of further assessment.

3.3.1.3 The Habitats Regulations do not define the term LSE. However, in the Waddenzee case (Case C-127/02) the European Court of Justice found that an LSE should be presumed, and an AA carried out, if it cannot be excluded on the basis of objective information that the plan or project will not have significant effects on the conservation objectives of the site concerned, whether alone or in-combination with any other project. The Advocate General's

opinion of the Sweetman case (Case C-258/11) further clarifies the position by noting that for a conclusion of an LSE to be made “*there is no need to **establish** such an effect... it is merely necessary to determine that there **may** be such an effect*” (original emphasis).

- 3.3.1.4 For the reasons highlighted above, the assessment process follows a precautionary principle throughout and the word ‘likely’ is regarded as a description of a risk (or possibility) rather than an expression of probability in a legal sense.
- 3.3.1.5 Screening can be used to screen-out Designated sites and elements of works from further assessment if it is possible to determine that significant effects are unlikely (e.g. if sites or interest features are clearly not vulnerable (exposed and/or sensitive) to the outcomes of the proposal due to the absence of any reasonable impact pathways).
- 3.3.1.6 The HRA Screening process has two potential conclusions, namely that the Project, alone or in combination with other developments, could result in:
- no LSE on any of the qualifying features of the site; or
 - an LSE is identified or cannot be ruled out that may have significant adverse effect on one or more of the qualifying features of the site and hence a potentially significant effect on site integrity.
- 3.3.1.7 Only the second of these outcomes will trigger an AA. If one or more LSE are identified, or cannot be ruled out, it is then necessary to proceed to Stage 2 and produce an AA.
- 3.3.1.8 On 12 April 2018, the CJEU issued a judgment on Case C323/17 (People over Wind, Peter Sweetman v Coillte Teoranta) which stated (at paragraph 41):
- “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, in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects [mitigation] of the plan or project on that site.”*
- 3.3.1.9 This means that any mitigation relating to avoiding effects on Designated sites will no longer be considered at the screening stage but taken forward and considered at the AA stage to inform a decision on whether no adverse effects on site integrity can be demonstrated.
- 3.3.1.10 The HRA Screening assessment provided within this document takes into account the CJEU ruling on ‘People over Wind’. It has also adopted a strong precautionary principle; if a pathway of effect is established between the Project and a Designated site, then that effect is considered for LSE. This ensures all effects are considered, including *de minimis* effects.
- 3.3.1.11 If an effect is examined at LSE and determined to be *de minimis*, then the screening result is one of no LSE, therefore no AA required. The exception is if the effect adds to an in-combination effect that is defined as a LSE. In this case, the *de minimis* effect will result in AA on an in-combination basis.

3.4 Approach to Screening

3.4.1 Overview

- 3.4.1.1 This HRA Screening Report is intended to cover HRA Stage 1 – Screening only.
- 3.4.1.2 Screening aims to determine whether the Project will have any LSE on any Designated site as a result of its implementation. It is intended to be an informed coarse filter for identifying effects (positive and negative) that may occur, to allow the assessment stage to focus on the most important aspects.

3.4.2 Screening methodology

- 3.4.2.1 This report follows the procedures for screening described by the European Commission in the guidance document 'Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC'. These steps are:
- Step 1: Determining whether the project or plan is directly connected with or necessary for the management of the site.
 - Step 2: Describing the baseline conditions for the Project.
 - Step 3: Identifying the potential LSEs on Designated sites.
 - Step 4: Assessing the presence of LSEs on Designated sites.

Step 1: Determining relevant Designated sites

- 3.4.2.2 The Habitats Regulations applies to plans or projects that are not directly related to the conservation management of a Designated site. This first step of the screening process is therefore to identify whether the plan or project in question is related to the conservation management of any Designated sites.
- 3.4.2.3 For the purpose of the Habitats Regulations, the Project can be defined as a 'plan or project' and it is not directly connected with or necessary for the management of any Designated site. An AA may, therefore, be required and so it is necessary to proceed through the Screening process.
- 3.4.2.4 To complete Step 1, the Designated sites of relevance to the HRA Screening must be identified. The criteria used to identify Designated sites are as follows:
- **Criterion 1:** Designated site(s) boundary has direct overlap with the Project area (as described for this project in **Chapter 2**);
 - **Criterion 2:** Designated site(s) for qualifying mobile species/features (in marine/freshwater/terrestrial environments) whose range (e.g. foraging, breeding, non-breeding, migratory or natural habitat range) may interact with the Project; and
 - **Criterion 3:** Designated site(s) and/or qualifying interest features with supporting or functionally linked habitat located within a potential receptor Zone of Influence (ZOI) of the Project area described in **Chapter 2**.
- 3.4.2.5 Where a Designated site meets any of the criteria outlined above, the sites will be taken forward through Steps 2-4 in the Screening process. For any Designated sites that do not meet the above criteria set out above, it is considered that there is no potential for LSE, and

they are therefore excluded from further consideration through Steps 2-4 in the Screening process.

- 3.4.2.6 To capture remote sites where species distribution or ranges provide connectivity (as per Criterion 2), an initial 'long-list' of Designated sites is identified based on the theoretical potential for spatial connectivity. The outcome of the initial selection process for Designated sites is presented in **Chapter 4** for each receptor group.
- 3.4.2.7 There may be some instances where additional receptor specific criteria are used to identify Designated sites during the initial site selection phase, such as for marine mammals (see **Section 4.1.3**).
- 3.4.2.8 This is followed by a refinement process whereby the significance of the effect-pathways to the Designated sites on the long-list is then considered in more depth in (and beyond a theoretical spatial relationship) at the subsequent Screening stage detailed in **Chapter 6**.
- 3.4.2.9 Both the initial site selection process and refinement process are necessary to meet the requirements of HRA for an auditable process that considers every risk and isolates the important ones.

Step 2: Baseline conditions

- 3.4.2.10 This step requires an understanding of the location and description of the elements of the Project that could result in effects on a Designated site or land functionally linked to that site (see **Chapter 2**). The description must identify the elements of the Project that may directly affect a Designated site (e.g. land-take), those that may indirectly affect a Designated site (e.g. emissions to air) and those that may act in-combination with other plans or projects.

Step 3: Identification of potential likely significant effects (LSE) on Designated sites

- 3.4.2.11 For sites and features identified by the site selection process, consideration is given at Screening to each pathway for the potential for LSE to result. Initially, consideration is given to potential project effects acting alone (see **Chapter 7**).

Step 4: Determination of the potential for LSE alone and in-combination with other plans or projects

- 3.4.2.12 A LSE is an effect that may reasonably be predicted as a consequence of the Project that would result in more than '*de minimis*' change and that may affect the Conservation Objectives of a habitat or species for which a Designated site is designated. 'Risk' in HRA terms, refers to a 'possibility' rather than a 'probability'. Where there is any uncertainty as to the likelihood or significance of impacts, the EU's precautionary principle must apply and the protection of the Designated site takes priority. The Stage one 'test of significance' is therefore, a low bar and Screening is a relatively coarse filter to identify sites for which, on current information about the Project, LSE cannot be discounted.
- 3.4.2.13 This step identifies whether the proposed works described in Step 2 (**Chapter 2**) and potential effects described in Step 3 (**Chapter 6**) have the potential to cause LSE on the qualifying features of those Designated sites initially screened in at Step 1 (**Chapter 4**). Each site, qualifying feature and screening rationale are detailed in the screening matrices in **Appendices A, B and C**.

In-combination effects

- 3.4.2.14 As part of the HRA Screening process, the Project must determine whether, either alone or in-combination with other plans and projects, the Project is likely to have a significant effect on a Designated site(s). Information on other projects and plans that have been subject to a HRA in relation to the Designated sites being assessed is required to allow an assessment of any 'in-combination' effects of the Project with other schemes that may affect the Designated sites. This information will be presented in the RIAA. The potential in-combination effects are addressed in **Section 7.4**.

3.5 Stakeholder engagement and consultation

- 3.5.1.1 The HRA Screening has been informed by a stakeholder engagement and consultation process undertaken with relevant stakeholders. **Table 3.1** provides an overview of the stakeholder engagement feedback obtained during the development of this HRA Screening report. This feedback, along with any further feedback received within the Scoping Opinion is being factored into the approach to the HRA. **Table 3.1** provides a summary of consultation to date, along with a response to identify how the matter is dealt with within this Report.

Table 3.1 Stakeholder engagement and consultation feedback

Stakeholder / date of consultation	Stakeholder comment	Action taken to address comment
MD-LOT Scoping Opinion 12 May 2023		
MD-LOT	Migratory / diadromous fish Additionally, any connectivity these species have back to natal rivers must be considered and assessed through the EIA Report rather than the HRA Report. The Scottish Ministers are aware of ongoing research in this area which may later change this advice and may change conclusions on how diadromous fish are treated in both EIA and HRA going forward.	The Project will include any connectivity with natal rivers in the EIA Report not in this HRA Screening Report.
NatureScot	Migratory / diadromous fish Due to uncertainty on where migratory fish (Atlantic salmon, sea trout and sea and river lamprey) go within marine waters and any connectivity back to natal rivers we consider these species	The Project will include any connectivity with natal rivers in the EIA Report not in this HRA Screening Report.

Stakeholder / date of consultation	Stakeholder comment	Action taken to address comment
	should be considered and assessed through EIA only and not through HRA. We are aware of work being led by ScotMER on the Review of Evidence of Diadromous Fish, and this is an area of research which may change conclusions on how diadromous fish are treated in both EIA and HRA going forward.	
NatureScot	Habitats Regulations Appraisal (HRA) Our preference is for an HRA Screening Report to be submitted at the same time as the EIA Scoping Report. The HRA Screening Report should identify sites for which there may be a likely significant effect (LSE). We request that such a report is produced and submitted for comment at the earliest opportunity, in order to fully inform our HRA advice for this project.	The Project's intention was to submit the HRA Screening Report after receiving all feedback from the Scoping Opinion. The Project has undertaken an evaluation of the Project design (see Chapter 2) and decided to deliberate further on the HRA Screening in order to ensure that a proportionate and robust screening exercise could be undertaken reflecting further design refinements.
NatureScot	Seal count With regard to seal count data presented [in Table 5.6.9 of the Scoping Report], we note that these are August counts for both harbour and grey seals. We advise that numbers of grey seals will be far higher within the SACs during the breeding season, which is the rationale for designation of grey seal SACs. At other times of year, numbers are much lower. It would be useful to present both the August counts and the pup Production numbers for grey seals within the SACs, as this would give a much more accurate picture. The EIA and HRA will need to consider the breeding numbers, but we note that all the	The Project will include grey seal pup production numbers within the EIA Report.

Stakeholder / date of consultation	Stakeholder comment	Action taken to address comment
	SACs mentioned will be outside the 20km (grey seal) and 50km (harbour seal) connectivity distances, so an assessment for HRA is unlikely to be needed.	
NatureScot Meeting / 9 August 2022	HRA An initial meeting with NatureScot to present the scope of onshore ecology and ornithology field survey, evaluation, assessment, and engagement. Following a presentation of the proposals and in light of recognition of European sites within the Scoping boundary and the acknowledgement of the proposed programme of wintering geese and swan surveys, NatureScot provided the following advice. European sites including Loch of Strathbeg SPA / Ramsar site and their qualifying interest features will require consideration as part of the HRA Screening assessments.	Designated sites including Loch of Strathbeg SPA/Ramsar and their qualifying interest features are considered within the HRA Screening assessment see Section 4.1.4.

4 HRA Screening Step 1: Designated Site Selection Process

4.1 Designated sites identified from the site selection process

4.1.1 Designated sites conservation objectives

4.1.1.1 **Table 4.1** lists the Designated sites, qualifying features, and conservation objectives relevant to this HRA Screening Report. The Designated sites identified for each separate receptor group are detailed in **Section 4.1.2** to **4.1.4**.

Table 4.1 Designated sites' qualifying features and conservation objectives

Site Name	Qualifying feature(s)	Conservation objective(s)
Loch of Strathbeg Ramsar	Ramsar criterion 1 – The largest dune slack pool in Britain, with an area of 200ha. Ramsar criterion 2 – Supporting sandwich tern <i>Thalasseus sandvicensis</i> (1985 to 1990, an average of 280 pairs, 2.0% of the Great Britain (GB) population. Ramsar criterion 4 – Supporting: • Teal <i>Anas crecca</i> (1,270 individuals, 1% of GB population. • Common goldeneye <i>Bucephala clangula</i> (150 individuals, 1% of the GB population). • Pink-footed goose <i>Anser brachyrhynchus</i>, whooper sawn <i>Cygnus cygnus</i> and Svalbard barnacle goose <i>Branta leucopsis</i> are also components of the waterbird assemblage. 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. Ramsar criterion 6 – Supporting 1% or more of the individuals in a population of waterbirds: • Pink-footed goose (1986/87 to 1990/1, average winter peak count of 27,500 individuals, 25% of the Eastern Greenland / Iceland / UK biogeographic population. • Greylag goose <i>Anser anser</i> (a 5-year winter peak mean between 1986/87 and 1990/91 of 245 individuals, 1.5% of the Iceland / UK and Ireland biogeographic population). • Svalbard barnacle goose (a 5-year winter peak mean between 2005/06 and 2009/10 of 520 individuals, 1.6% of the Svalbard / South West (SW) Scotland biogeographic population.	See the Loch of Strathbeg SPA conservation objectives which are listed elsewhere in this table.
Buchan Ness to Collieston SAC	Annex I habitat that are the primary reason for selection of this site: • Vegetated sea cliffs of the Atlantic and Baltic coasts.	1. To ensure that the qualifying feature of Buchan Ness to Collieston SAC is in favourable condition and makes an appropriate contribution to achieving FCS. 2. To ensure that the integrity of Buchan Ness to Collieston SAC is maintained by meeting objectives 2a, 2b and 2c. 2a. Maintain the extent and distribution of the habitat within the site. 2b. Maintain the structure, function and supporting process of the habitat. 2c. Maintain the distribution and viability of typical species of the habitat.
Moray Firth SAC	Annex II species that are a primary reason for selection of this site: • Bottlenose dolphin <i>Tursiops truncates</i>.	1. To ensure that the qualifying features of Moray Firth SAC are in favourable condition and make an appropriate contribution to achieving FCS. 2. To ensure that the integrity of Moray Firth SAC is maintained or restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature: For bottlenose dolphin: 2a. The population of bottlenose dolphin is a viable component of the site. 2b. The distribution of bottlenose dolphin throughout the site is maintained by avoiding significant disturbance. 2c. The supporting habitats and processes relevant to bottlenose dolphin and the availability of prey for bottlenose dolphin are maintained.

Site Name	Qualifying feature(s)	Conservation objective(s)
Dornoch Firth and Morrich More SAC	Annex II species that are a primary reason for selection of this site: Harbour seal <i>Phoco vitulina</i>.	To avoid deterioration of the habitats of qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving FCS for each of the qualifying interests. 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. - No significant disturbance of the species.
Sanday SAC	Annex II species that are a primary reason for selection of this site: Harbour seal.	To avoid deterioration of the habitats of qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving FCS for each of the qualifying interests. 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. - No significant disturbance of the species.
Isle of May SAC	Annex II species that are a primary reason for selection of this site: Grey seal <i>Halichoerus grypus</i>.	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 the site makes an appropriate contribution to achieving FCS for each of the qualifying features; 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. - No significant disturbance of the species.
Firth of Tay and Eden Estuary SAC	Annex II species that are a primary reason for selection of this site: Harbour seal.	To avoid deterioration of the habitats of qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving FCS for the qualifying interests. 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. - No significant disturbance of the species.
Faray and Holm of Faray SAC	Annex II species that are a primary reason for selection of this site: Grey seal.	To avoid deterioration of the habitats of qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving FCS for the qualifying interest. 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.

Site Name	Qualifying feature(s)	Conservation objective(s)
		No significant disturbance of the species.
Berwickshire and North Northumberland Coast SAC	Annex II species that are a primary reason for selection of this site: Grey seal.	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the FCS of its qualifying features, by maintaining or restoring; - The extent and distribution of qualifying natural habitats and habitats of qualifying species. - The structure and function (including typical species) of qualifying natural habitats. - The structure and function of the habitats of qualifying species. - The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely. - The populations of qualifying species. - The distribution of qualifying species within the site.
Southern North Sea SAC	Annex II species that are a primary reason for selection of this site: Harbour porpoise <i>Phocoena Phocoena</i>.	To ensure that the integrity of the site is maintained and that it makes the best possible contribution to maintaining FCS for Harbour Porpoise in UK waters. In the context of natural change, this will be achieved by ensuring that: - Harbour porpoise is a viable component of the site; - There is no significant disturbance of the species; and - The condition of supporting habitats and processes, and the availability of prey is maintained.
Vlaamse Banken SAC	Annex II species: Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour seal have been applied here as well as the Oslo and Paris Convention for the Protection of the Marine Environment (OSPAR) conservation objectives ² : - to maintain, conserve or restore biodiversity, natural heritage, habitats, species or landscapes with legal protection status; - to maintain key ecological functions; - to manage the exploitation of natural resources; and - to improve governance on MPA territory. The focus of these is on conserving the habitat and population
SBZ 1/ZPS 1 SAC SBZ 2/ZPS 2 SAC SBZ 3/ZPS 3 SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise, grey seal and harbour seal have been applied here, as well as the OSPAR conservation objectives. The focus of these is on conserving the habitat and population.
Vlakte van de Raan SAC	Annex II species: Harbour porpoise.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise, grey seal and harbour seal have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.

² https://www.ospar.org/site/assets/files/1200/north-east_atlantic_enviroment_strategy_compiled.pdf
³ <https://biodiversity.europa.eu/sites/natura2000/DE1011401>

Site Name	Qualifying feature(s)	Conservation objective(s)
Gule Rev SAC	Annex II species: Harbour porpoise.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Knudegrund SAC	Annex II species: Harbour porpoise.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Jyske Rev, Lillefiskerbanke SAC	Annex II species: Harbour porpoise.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Lønstrup Rødgrund SAC	Annex II species: Harbour porpoise.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Sandbanker ud for Thorsminde SAC	Annex II species: Harbour porpoise.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Skagens Gren og Skagerak SAC	Annex II species: - Harbour porpoise - Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise and harbour seal have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
SPA Ostliche Deutsche Bucht	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	Conservation and development of conditions that allow species to utilise the area within their natural spatial and temporal patterns. ³
Store Rev SAC	Annex II species: Harbour porpoise.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.

Site Name	Qualifying feature(s)	Conservation objective(s)
Sydlig Nordsø SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise, grey seal and harbour seal have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Sylter Außenriff site of community importance (SCI)	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	Conservation and restoration of the specific ecological functions, biological diversity and natural dynamics of the site. ⁴
Thyborøn Stenvolde SAC	Annex II species: Harbour porpoise.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Vadehavet med Ribe Å, Tved Å og Varde Å vest for Varde SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise, grey seal and harbour seal have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Doggerbank SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	The targets applicable to the qualifying features are: - conserve the area and quality of supporting habitat; and - conserve the population size.⁵
Klaverbank SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	The targets applicable to the qualifying features are: - conserve the area and quality of supporting habitat; and - conserve the population size.⁶
Noordzeekustzone SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise, grey seal and harbour seal have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Vlakte van de Raan SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise, grey seal and harbour seal have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.

⁴ <https://biodiversity.europa.eu/sites/natura2000/DE1209301>
⁵ <https://biodiversity.europa.eu/sites/natura2000/NL2008001>
⁶ <https://biodiversity.europa.eu/sites/natura2000/NL2008002>

Site Name	Qualifying feature(s)	Conservation objective(s)
Waddenzee SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise, grey seal and harbour seal have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Oosterschelde Westerschelde & Saeftinghe SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise, grey seal and harbour seal have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Borkum-Riffgrund SCI	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	Conservation and restoration of the specific ecological functions, biological diversity and natural hydrological and morphodynamical process of the site. ⁷
Hamburgisches Wattenmeer SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	Conservation of: - viable stocks and a natural reproduction capacity of the harbour seal, including juvenile survival; - viable stocks and a natural reproduction capacity of the grey seal, including juvenile survival; - viable stocks and a natural reproduction capacity of the harbour porpoise; and - conservation of habitat quality for conservation of species.⁸
Helgoland mit Helgoländer Felssockel SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	For harbour porpoise, conservation of: - viable populations and natural reproductive capacity, including juvenile survival; - natural coastal waters, especially productive shallow water zones up to 20m deep; - fish stocks for food, especially herring, mackerel, cod, whiting and gobies; and - minimising pollution of coastal waters as much as possible. For grey seal and harbour seal, conservation of: - viable populations and natural reproductive capacity, including juvenile survival; - natural marine waters with rocky or sandy coasts and shallow water zones; - undisturbed resting areas; - very undisturbed pupping sites during period from November to February (grey seal); - a species-rich fauna (fish, shrimp, mussels, crabs, etc.) as prey.⁹
Nationalpark Niedersächsisches Wattenmeer SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise, grey seal and harbour seal have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.

⁷ <https://biodiversity.europa.eu/sites/natura2000/DE2104301>
⁸ https://www.waddensea-worldheritage.org/sites/default/files/2010_Wadden%20Sea%20Plan.pdf
⁹ <https://umweltanwendungen.schleswig-holstein.de/Natura2000/pdf/erhaltungsziele/DE-1813-391.pdf>

Site Name	Qualifying feature(s)	Conservation objective(s)
NTP S-H Wattenmeer und angrenzende Küstengebiete SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	For grey seal and harbour seal, conservation of: - viable stocks and a natural reproductive capacity, including the survival of juveniles; - natural marine and coastal waters with shallow water zones and sandy coasts; - the natural marine and coastal dynamics; - the lowest possible level of pollution in marine and coastal waters; - quiet seal haul-outs; - very low-disturbance throwing areas; - low-disturbance areas with low underwater noise levels; - a species-rich fauna (fish, shrimp, mussels, crabs, etc.) as prey. For harbour porpoise, conservation of: - viable populations and natural reproductive capacity, including the survival of juveniles; - natural coastal waters of the North Sea, especially productive shallow water areas up to 20m deep; - disturbance-free areas with low underwater noise pollution as calving and nursery area; and - food stocks, especially herring, mackerel, cod, whiting and gobies. As well as: - ensuring minimal pollution of coastal waters; - avoiding collisions with ships; and - avoiding fishing practices hazardous to marine mammals.¹⁰
Untereelbe SAC	Annex II species: - Harbour porpoise - Harbour seal.	The targets applicable to the relevant qualifying features: - avoid any worsening of the conservation status of the Natura 2000 protected items; and - retaining and restoring an FCS to the Natura 2000 protected items.¹¹
Steingrund SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	For harbour porpoise, conservation of: - viable populations and natural reproductive capacity, including the survival of juveniles; - natural waters of the North Sea, especially productive shallow water areas of up to 20m depth; - undisturbed areas with low underwater sound pollution as calving and nursery grounds; - the food fish stocks, especially herring, mackerel, cod, whiting and gobies; and - ensuring the lowest possible pollution of coastal waters. For grey seal, conservation of: - viable populations and natural reproductive capacity, including the survival of juveniles; - natural marine waters with shallow water areas; - natural marine waters with shallow water areas; natural marine dynamics; and - a diverse fauna (fish, mussels, crabs) as a food source. For harbour seal, conservation of: - viable populations and natural reproductive capacity, including the survival of juveniles; - natural marine waters; and - a diverse fauna (fish, shrimp, etc.) as a good source.¹²

¹⁰ <https://umweltanwendungen.schleswig-holstein.de/Natura2000/pdf/erhaltungsziele/DE-0916-391.pdf>
¹¹ https://www.natura2000-unterelbe.de/media/downloads/IBP_engl_mit_Titel_72dpi_RGB.pdf
¹² <https://umweltanwendungen.schleswig-holstein.de/Natura2000/pdf/erhaltungsziele/DE-1714-391.pdf>

Site Name	Qualifying feature(s)	Conservation objective(s)
Baie de Canche et couloir des trois estuaires SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise, grey seal and harbour seal have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Bancs des Flandres SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise, grey seal and harbour seal have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Baie de Seine occidentale SAC	Annex II species: - Harbour porpoise - Bottlenose dolphin - Grey seal - Harbour seal.	Reduce the pressures exerted at the site level on habitats, species and their functionalities. Monitor habitats and species of interest and address knowledge challenges.¹³
Baie de Seine orientale SAC	Annex II species: - Harbour porpoise - Bottlenose dolphin - Grey seal - Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise, bottlenose dolphin, grey seal and harbour seal have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Falaises du Cran aux Oeufs et du Cap Gris-Nez, Dunes du Chatelet, Marais de Tardingenhen et Dunes de Wissant SAC	Annex II species: - Harbour porpoise - Bottlenose dolphin - Grey seal - Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise, bottlenose dolphin, grey seal and harbour seal have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Recifs Gris-Nez Blanc-Nez SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise, grey seal and harbour seal have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC	Annex II species: - Harbour porpoise - Grey seal - Harbour seal.	No available information on conservation status or conservation targets for the site features has been sourced. Therefore, as proxy and to ensure consistency, the conservation objectives applied elsewhere for assessments for harbour porpoise, grey seal and harbour seal have been applied here, as well as the OSPAR conservation objectives ³ . The focus of these is on conserving the habitat and population.
Buchan Ness to Collieston Coast SPA	Article 4.2: - Kittiwake <i>Rissa tridactyla</i> (breeding Component of Seabird Assemblage (CoSA)) (30,452 pairs, 6.2% of the GB population). - Herring gull <i>Larus argentatus</i> (breeding CoSA) (4,292 pairs, 2.7% of the GB population).	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;

¹³ https://reseau-manchemerduord.n2000.fr/sites/baieseineoccidentale-caplevi.n2000.fr/files/documents/page/tome_3_bsoc.pdf

Site Name	Qualifying feature(s)	Conservation objective(s)
	- Guillemot <i>Uria aalge</i> (breeding CoSA) (8,640 pairs, 1.2% of GB population). - Fulmar <i>Fulmarus glacialis</i> (breeding CoSA) (1,765 pairs, 0.3% of the GB population). - European shag <i>Phalacrocorax aristotellus</i> (breeding CoSA) (1,045 pairs, 2.7% of the GB population). - Seabird assemblage (breeding).	- 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.¹⁴
Loch of Strathbeg SPA	Article 4.1: - Sandwich tern (breeding) (1985 to 1990 an average of 280 pairs, 2% of GB population). - Whooper swan (non-breeding) (a 5-year winter peak between 1986/87 and 1990/91 of 245 individuals, 4% of the GB population). - Svalbard barnacle goose (non-breeding) (a 5-year winter peak meant between 2005/06 and 2009/10 of 520 individuals, 1.6% of the GB population). Article 4.2: - Greylag goose (non-breeding) (1986/87 to 1990/91, average winter peak count of 5,565 individuals, 6% of the Iceland/UK/Ireland biogeographic population). - Pink-footed goose (non-breeding) (1986/87 to 1990/91, average winter peak count of 27,500 individuals, 25% of the Eastern Greenland / Iceland / UK biogeographic population and 25% of the GB population). - Teal (Component of Waterbird Assemblage (CoWA)) (1,270 individuals, 1% of the GB population). - Common goldeneye (CoWA) (150 individuals, 1% of the GB population) - Waterfowl assemblage (non-breeding).	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.¹⁵
Troup, Pennan and Lion's Heads SPA	Article 4.2: - Kittiwake (breeding) (31,600 pairs in 1995; 6% of the British population and 1% of the total population of the sub-species). - Herring gull (breeding CoSA) (4,200 pairs, 2% of the British breeding population). - Guillemot (breeding) (44,600 individuals in 1995, 4% of the British and 1% of total population of the sub-species <i>U.a.aalge</i> and <i>Uria aalge albionis</i>). - Razorbill <i>Alca torda</i> (breeding CoSA) (4,800 individuals). - Fulmar (breeding CoSA) (4,400 pairs). - Seabird assemblage (breeding).	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.¹⁶
Ythan Estuary, Sands of Forvie and Meikle Loch SPA	Article 4.1 - Sandwich tern (breeding) (1989 to 1991, up to 1125 pairs, up to 7% of the GB population). - Common tern <i>Sterna hirundo</i> (breeding) (1989 to 1993, up to 265 pairs, up to 2% of the GB population).	- To ensure that the qualifying features of the Ythan Estuary, Sands of Forvie and Meikle Loch SPA are in favourable condition and make an appropriate contribution to achieving FCS. - To ensure that the integrity of the Ythan Estuary, Sands of Forvie and Meikle Loch SPA is restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature: 2a. The populations of the qualifying features are viable components of the site.

¹⁴ <https://sitelink.nature.scot/site/8473>

¹⁵ <https://sitelink.nature.scot/site/8537>

¹⁶ <https://sitelink.nature.scot/site/8587>

Site Name	Qualifying feature(s)	Conservation objective(s)
	- Little tern <i>Sternula albifrons</i> (breeding) (1989 to 1993, up to 41 pairs, up to 2% of the GB population). Article 4.2: - Pink-footed goose (non-breeding) (988/89 to 1992/93, 17,213 individuals, 9% of the Eastern Greenland/Iceland/UK biogeographic population). - Waterbird assemblage (non-breeding). - Eider <i>Somateria mollissima</i> (CoWA) (winter peak mean of 1,860 individuals, 2% of the GB population). - Lapwing <i>Vanellus vanellus</i> (CoWA) (2,542 individuals, 0.2% of the GB population). - Redshank <i>Tringa totanus</i> (CoWA) (1,149 individuals, 1% of the GB population).	2b. The distributions of the qualifying features throughout the site are maintained, or where appropriate restored, by avoiding significant disturbance of the species. 2c. The supporting habitats and processes relevant to qualifying features and their prey resources are maintained, or where appropriate restored, at the Ythan Estuary, Sands of Forvie and Meikle Loch SPA.¹⁷
Moray Firth SPA	Article 4.1: - Great northern diver <i>Gavia immer</i> (non-breeding) (144 individuals, 5.8% of GB population). - Red-throated diver <i>Gavia stellata</i> (non-breeding) (324 individuals, 1.9% of the GB population). - Slavonian grebe <i>Podiceps auratus</i> (non-breeding) (43 individuals, 3.9% of the GB population). Article 4.2: - Greater scaup <i>Aythya marila</i> (non-breeding) (930 individuals, 17.9% of the GB population). - Common eider <i>Somateria mollissima</i> (non-breeding) (1,733 individuals, 2.9% of GB population). - Long-tailed duck <i>Clangula hyemalis</i> (non-breeding) (5,001 individuals, 2.9% of GB population). - Common scoter <i>Melanitta nigra</i> (non-breeding) (5,479 individuals, 5.5% of GB population). - Velvet scoter <i>Melanitta fusca</i> (non-breeding) (1,488 individuals, 59.5% of GB population). - Common goldeneye (non-breeding) (907 individuals, 4.5% of GB population). - Red-breaster merganser <i>Mergus serrator</i> (non-breeding) (151 individuals, 1.8% of GB population). - European shag (non-breeding) (6,462 individuals during the non-breeding season, 3.2% of the biogeographic population and 5.9% of GB population; and 5,494 individuals during the breeding season, 2.7% biogeographic population and 10.2% of the GB population).	1. To ensure that the qualifying features of the Moray Firth SPA are in favourable condition and make an appropriate contribution to achieving FCS. 2. To ensure that the integrity of the Moray Firth SPA is restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature: 2a. The populations of qualifying features are viable components of the site. 2b. The distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species. 2c. The supporting habitats and processes relevant to qualifying features and their prey resources are maintained, or where appropriate restored, at the Moray Firth SPA.¹⁸
Loch of Skene SPA	Article 4.2: - Greylag goose (migratory) (5,500 individuals, over 5% of the Iceland / UK / Ireland biogeographic population). - Common goldeneye (migratory) (150 individuals, 1% of the GB population).	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: population of the species as a viable component of the site;

¹⁷ <https://sitelink.nature.scot/site/8592>

¹⁸ <https://sitelink.nature.scot/site/10490>

Site Name	Qualifying feature(s)	Conservation objective(s)
	Goosander <i>Mergus merganser</i> (migratory) (110 individuals, over 2% of the GB population).	- 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.¹⁹
Fowlsheugh SPA	Article 4.2: - Kittiwake (breeding) (36,650 pairs, 7.5% of the GB population, 1.2 % of World population). - Herring gull (breeding CoSA) (3,190 pairs, 2% of the GB population) - Guillemot (breeding) (56,450 individuals, 5% of GB population, 1.7% of Western European population). - Razorbill (breeding CoSA) (5,800 individuals, 3.9% of the GB population). - Fulmar (breeding CoSA) (1,170 pairs, 0.2% of the GB population). - Seabird assemblage (breeding).	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.²⁰
East Caithness Cliffs SPA	Article 4.2: - Kittiwake (breeding) (32,500 pairs, 1.0% of north Atlantic biogeographic population and 7% of the GB population). - Great black-backed gull <i>Larus marinus</i> (breeding CoSA) (800 pairs, 4% of the GB population). - Herring gull (breeding) (9,400 pairs, 1.0% of North West (NW) European biogeographic population and 6% of the GB population). - Guillemot (breeding) (106,700 individuals, 3.1% of north Atlantic biogeographic population and 10% of the GB population). - Razorbill (breeding) (15,800 individuals, 1.8% of total <i>A.t.islandica</i> biogeographic population and 11% of the GB population). - Fulmar (breeding CoSA) (15,000 pairs, 3% of the GB population) - Seabird assemblage (breeding).	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.²¹
North Caithness Cliffs SPA	Article 4.2: - Kittiwake (breeding CoSA) (13,100 pairs, 3% of the GB population). - Guillemot (breeding) (38,300 individuals, 1% of the North Atlantic biogeographic population and 4% of the GB population). - Razorbill (breeding CoSA) (4,000 individuals, 3% of the GB population) - Puffin <i>Fratercula arctica</i> (breeding CoSA) (2,080 pairs, 0.4% of the GB population and greater than 2,000 individuals) - Fulmar (breeding CoSA) (14,700 pairs; 3% of the GB population) - Seabird assemblage (breeding).	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.²²
Forth Islands SPA	Article 4.2: - Kittiwake (breeding CoSA) (8,400 pairs, 1.7% of the GB population). - Herring gull (breeding CoSA) (6,600 pairs, 4.1% of the GB population). - Guillemot (breeding CoSA) (16,000 pairs, 2.2% of the GB population). - Razorbill (breeding CoSA) (1,400 pairs, 1.4% of the GB population).	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;

¹⁹ <https://sitelink.nature.scot/site/8536>

²⁰ <https://sitelink.nature.scot/site/8505>

²¹ <https://sitelink.nature.scot/site/8492>

²² <https://sitelink.nature.scot/site/8554>

Site Name	Qualifying feature(s)	Conservation objective(s)
	- Puffin (breeding) (14,000 pairs, 1.5% of the total <i>F.a.grabae</i> biogeographic population and 3.1% of the GB population). - Gannet <i>Morus bassanus</i> (breeding) (21,600 pairs, 8.2% of the world biogeographic population and 13.6% of the GB population). - Seabird assemblage (breeding).	- 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.²³
Moray and Nairn Coast SPA	Article 4.1: - Osprey <i>Pandion haliaetus</i> (breeding) (2008 to 2012, five year mean of up to 9 territories within feeding range, 4.5% of the GB population and 7 pairs breeding within the site, 7% of the GB population). - Bar-tailed godwit <i>Limosa lapponica</i> (non-breeding) (899 individuals, 2% of the GB population). Article 4.2: - Pink-footed goose (non-breeding) (7,538 individuals, 4% of the Eastern Greenland / Iceland / UK biogeographic population). - Greylag goose (non-breeding) (3,023 individuals, 3% of the Iceland / UK / Ireland biogeographic population). - Redshank (non-breeding) (1,690 individuals, 1% of the Eastern Atlantic biogeographic population). - Bar-tailed godwit (non-breeding) (899 individuals). - Pink-footed goose (non-breeding) (7,538 individuals, 4% of the GB population). - Greylag goose (non-breeding) (3,023 individuals, 3% of the GB population). - Red-breaster merganser (non-breeding) (102 individuals, 1% of the GB population). - Dunlin <i>Calidris alpina alpina</i> (non-breeding) (2,689 individuals, 0.5% of the GB population). - Oystercatcher <i>Haematopus ostralegus</i> (non-breeding) (2,171 individuals, 0.6% of the GB population). - Wigeon <i>Anas Penelope</i> (non-breeding) (2,600 individuals, 0.9% of the GB population). - Waterbird assemblage (non-breeding).	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.²⁴
Dornoch Firth and Loch Fleet SPA	Article 4.1: - Osprey (breeding) (up to 6 territories within feeding range, 6% of the GB population, with 1 pair breeding within the site, 1% of the GB population). - Bar-tailed godwit (non-breeding) (1,184 individuals, 2% of the GB population). Article 4.2: - Greylag goose (non-breeding) (1,146 individuals, 1% of the Icelandic / UK / Ireland biogeographic population). - Wigeon (non-breeding) (15,304 individuals, 2% of the W Siberia / NW & NE Europe biogeographic population).	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.²⁵

²³ <https://sitelink.nature.scot/site/8500>

²⁴ <https://sitelink.nature.scot/site/8550>

²⁵ <https://sitelink.nature.scot/site/8490>

Site Name	Qualifying feature(s)	Conservation objective(s)
	- Waterbird assemblage (non-breeding). - Curlew (non-breeding CoWA) (1,397 individuals, 1% of the GB population). - Teal (non-breeding CoWA) (1,592 individuals, 1% of the GB population). - Scaup (non-breeding CoWA) (123 individuals, 1% of the GB population). - Redshank (non-breeding CoWA) (1,272 individuals, 1% of the GB population). - Wigeon (non-breeding CoWA) (15,304 individuals, 5% of the GB population). - Greylag goose (non-breeding CoWA) (1,146 individuals, 1% of the GB population). - Bar-tailed godwit (non-breeding CoWA) (1,184 individuals). - Dunlin (non-breeding CoWA) (4,088 individuals, 1% of the GB population). - Oystercatcher (non-breeding CoWA) (2,459 individuals, 0.8% of the GB population).	
Inner Moray Firth SPA	Article 4.1: - Osprey (breeding) (up to 25 territories within feeding range, 12.5% of the GB population, with 4 pairs breeding within the site, 4% of the GB population). - Common tern (breeding) (310 pairs, 2% of the GB population) - Bar-tailed godwit (non-breeding) (1,090 individuals, 2% of the GB population). Article 4.2: - Greylag goose (non-breeding) (2,651 individuals, 3% of the Iceland / UK / Ireland biogeographic population). - Red-breasted merganser (non-breeding) (1,184 individuals, 1% of the Northwestern and Central Europe biogeographic population). - Redshank (non-breeding) (1,621 individuals, 1% of the Eastern Atlantic biogeographic population). - Waterbird assemblage (non-breeding). - Scaup (non-breeding CoWA) (118 individuals, 1% of the GB population). - Goosander (non-breeding CoWA) (325 individuals, 4% of the GB population). - Goldeneye (non-breeding CoWA) (218 individuals, 1% of the GB population). - Teal (non-breeding CoWA) (2,066 individuals, 1% of the GB population). - Wigeon (non-breeding CoWA) (7,310 individuals, 3% of the GB population). - Cormorant <i>Phalacrocorax carbo</i> (non-breeding CoWA) (409 individuals, 3% of the GB population). - Redshank (non-breeding CoWA) (1,162 individuals, 1% of the GB population). - Red-breasted merganser (non-breeding CoWA) (1,184 individuals, 12% of the GB population). - Greylag goose (non-breeding CoWA) (2,651 individuals, 3% of the GB population).	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.²⁶

²⁶ <https://sitelink.nature.scot/site/8515>

Site Name	Qualifying feature(s)	Conservation objective(s)
	- Bar-tailed godwit (non-breeding CoWA) (1,090 individuals). - Oystercatcher (non-breeding CoWA) (3,063 individuals, 0.9% of the GB population).	
Cromarty Firth SPA	Article 4.1: - Osprey (breeding) (up to 25 territories within feeding range, 12.5% of the GB population, with 1 pair breeding within the site, 1% of the GB population). - Common tern (breeding) (294 pairs, 2% of the GB population). - Whooper swan (non-breeding) (64 individuals, 1% of the GB population). - Bar-tailed godwit (non-breeding) (1,355 wintering individuals, 3% of the GB population). Article 4.2: - Waterbird assemblage (non-breeding). - Redshank (non-breeding CoWA) (1,149 individuals, 1% of the GB population). - Curlew (non-breeding CoWA) (1,313 individuals, 1% of the GB population). - Knot <i>Calidris canutus islandica</i> (non-breeding CoWA) (4,312 individuals, 1% of the GB population). - Red-breasted merganser (non-breeding CoWA) (204 individuals, 2% of the GB population). - Scaup (non-breeding CoWA) (295 individuals, 3% of the GB population). - Pintail <i>Anas acuta</i> (non-breeding CoWA) (319 individuals, 1% of the GB population). - Wigeon (non-breeding CoWA) (9,204 individuals, 3% of the GB population). - Greylag goose (non-breeding CoWA) (1,782 individuals, 2% of the GB population). - Bar-tailed godwit (non-breeding CoWA) (1,355 individuals). - Whooper swan (non-breeding CoWA) (64 individuals). - Dunlin (non-breeding CoWA) (3,384 individuals, 0.6% of the GB population). - Oystercatcher (non-breeding CoWA) (2,702 individuals, 0.8% of the GB population).	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.²⁷
Loch Ashie SPA	Article 4.1: Slavonian grebe (non-breeding) (60 individuals, up to 15% of the GB population).	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.²⁸

²⁷ <https://sitelink.nature.scot/site/8488>

²⁸ <https://sitelink.nature.scot/site/8525>

Site Name	Qualifying feature(s)	Conservation objective(s)
Caithness and Sunderland Peatlands SPA	Article 4.1: - Red-throated diver (breeding) (46 pairs, 3.5% of the GB population). - Black-throated diver <i>Gavia arctica</i> (breeding) (26 pairs, 15% of the GB population). - Hen harrier <i>Circus cyaneus</i> (breeding) (14 pairs, at least 2.8% of the GB population). - Golden eagle <i>Aquila chrysaetos</i> (breeding) (5 pairs, 1% of the GB population). - Wood sandpiper <i>Tringa glareola</i> (breeding) (5 pairs, up to 40% of the GB population). - Short-eared owl <i>Asio flammeus</i> (breeding) (30 pairs, 2% of the GB population). - Dunlin (breeding) (1,860 pairs, 20% of the GB population). Article 4.2: - Common scoter (breeding) (at least 21 pairs, <0.1% of the Western Siberia / Western & Northern Europe / Northwestern Africa biogeographic population and at least 40.4% of the GB population). - Greenshank <i>Tringa nebularia</i> (breeding) (at least 653 pairs, at least 0.9% of the Europe / Western Africa biogeographic population and at least 59.4% of the GB population). - Wigeon (breeding) (at least 43 pairs, <0.1% of the Western Siberia / Northwestern / Northeastern Europe biogeographic population and at least 10.8% of the GB population).	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.²⁹
Loch Flemington SPA	Article 4.1: Slavonian grebe (breeding) (6 pairs, 10% of the GB population).	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.³⁰
Copinsay SPA	Article 4.2: - Kittiwake (breeding CoSA) (9,550 pairs, 2% of the GB population). - Great black-backed gull (breeding CoSA) (490 pairs, 3% of the GB population). - Guillemot (breeding CoSA) (29,450 individuals, 3% of the GB population). - Fulmar (breeding CoSA) (1,615 pairs, 0.3% of the GB population). - Seabird assemblage (breeding).	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.³¹

²⁹ <https://sitelink.nature.scot/site/8476>

³⁰ <https://sitelink.nature.scot/site/8527>

³¹ <https://sitelink.nature.scot/site/8485>

Site Name	Qualifying feature(s)	Conservation objective(s)
Hoy SPA	Article 4.2: - Kittiwake (breeding CoSA) (3,000 pairs, 0.6% of the GB population). - Great black-backed gull (breeding CoSA) (570 pairs, 3% of the GB population). - Great skua <i>Stercorarius skua</i> (breeding) (1,900 pairs, 14% of the world biogeographic population). - Guillemot (breeding CoSA) (13,400 pairs, 2% of the GB population). - Puffin (breeding CoSA) (3,500 pairs, 0.7% of the GB population). - Fulmar (breeding CoSA) (35,000 pairs, 6% of the GB population). - Seabird assemblage (breeding).	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.³²
Auskerry SPA	Article 4.1: Storm-petrel <i>Hydrobates pelagicus</i> (breeding) (3,600 pairs in 1995; 4% of the British and 1% of World population).	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.³³
St. Abb's Head to Fast Castle SPA	Article 4.2: - Kittiwake (breeding CoSA) (21,170 pairs, 4% of the GB population). - Herring gull (breeding CoSA) (1,160 pairs, 0.7% of the GB population). - Guillemot (breeding CoSA) (31,750 individuals, 3% of the GB population). - Razorbill (breeding CoSA) (2,180 individuals, 1% of the GB population). - Seabird assemblage (breeding).	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.³⁴
Fair Isle SPA	Article 4.2: - Kittiwake (breeding CoSA) a (18,160 pairs, 4% of the GB population). - Great skua (breeding CoSA) (110 pairs, 1% of the GB population). - Guillemot (breeding) (32,300 individuals, 1.4% of the north Atlantic biogeographic population and 3% of the GB population). - Razorbill (breeding CoSA) (3,400 individuals, 2% of the GB population). - Puffin (breeding CoSA) (23,000 individuals, 2% of the GB population). - Fulmar (breeding CoSA) (35,210 pairs, 7% of the GB population). - Gannet (breeding CoSA) (1,166 pairs, 0.6% of the GB population). - Seabird assemblage (breeding).	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.³⁵
Calf of Eday SPA	Article 4.2: - Kittiwake (breeding CoSA) (1,717 pairs, 0.4% of the GB population). - Great black-backed gull (breeding CoSA) (938 pairs, 5% of the GB population).	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;

³² <https://sitelink.nature.scot/site/8513>

³³ <https://sitelink.nature.scot/site/8466>

³⁴ <https://sitelink.nature.scot/site/8579>

³⁵ <https://sitelink.nature.scot/site/8496>

Site Name	Qualifying feature(s)	Conservation objective(s)
	- Guillemot (breeding CoSA) (12,645 individuals, 1% of the GB population). - Fulmar (breeding CoSA) (1,955 pairs, 0.4% of the GB population). - Seabird assemblage (breeding).	- 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.³⁶
Rousay SPA	Article 4.2: - Kittiwake (breeding CoSA) (4,900 pairs; 1% of the GB population). - Guillemot (breeding CoSA) (10,600 individuals, 1% of the GB population). - Fulmar (breeding CoSA) (1,240 pairs, 0.2% of GB population). - Seabird assemblage (breeding).	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.³⁷
Marwick Head SPA	Article 4.2: - Kittiwake (breeding CoSA) (7,700 pairs, 2% of the GB population). - Guillemot (breeding) (37,700 individuals 1.1% of the western European biogeographic population and 4% of the GB population). - Seabird assemblage (breeding).	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.³⁸
West Westray SPA	Article 4.2: - Kittiwake (breeding CoSA) (23,900 pairs, 5% of the GB population). - Guillemot (breeding) (42,150 individuals, 1.2% of the North Atlantic biogeographic population). - Razorbill (breeding CoSA) (1,946 individuals, 1% of the GB population). - Fulmar (breeding CoSA) (1,400 pairs, 0.2% of the GB population). - Seabird assemblage (breeding).	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.³⁹
Farne Islands SPA	Article 4.2: - Kittiwake (breeding CoSA) (8,241 individuals, 1.11% of the GB population). - Guillemot (breeding) (32,875 pairs, 1.72% of <i>aa/ge</i> biogeographic population). - Seabird assemblage (breeding).	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; - the extent and distribution of the habitats of the qualifying features; - the structure and function of the habitats of the qualifying features; - the supporting processes on which the habitats of the qualifying features rely; - the population of each of the qualifying features; and - the distribution of the qualifying features within the site.⁴⁰
Cape Wrath SPA	Article 4.2: - Puffin (breeding CoSA) (5,900 pairs, 1.3% of the GB population). - Fulmar (breeding CoSA) (2,300 pairs, 0.4% of the GB population).	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:

³⁶ <https://sitelink.nature.scot/site/8478>

³⁷ <https://sitelink.nature.scot/site/8573>

³⁸ <https://sitelink.nature.scot/site/8544>

³⁹ <https://sitelink.nature.scot/site/8589>

⁴⁰ <https://publications.naturalengland.org.uk/publication/4521874151178240>

Site Name	Qualifying feature(s)	Conservation objective(s)
	Seabird assemblage (breeding).	- 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.⁴¹
Sumburgh Head SPA	Article 4.2: - Kittiwake (breeding CoSA) (1,366 pairs, 0.3% of the GB population). - Guillemot (breeding CoSA) <i>Uria aalge</i> (16,000 individuals, 1% of GB). - Fulmar (breeding CoSA) (2,542 pairs, 0.5% of the GB population). - Seabird assemblage (breeding).	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.⁴²
Handa SPA	Article 4.2: - Great skua (breeding CoSA) (66 pairs, 0.8% of the GB population). - Fulmar (breeding CoSA) (3,500 pairs, 0.7% of the GB population). - Seabird assemblage (breeding).	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.⁴³
Sule Skerry and Sule Stack SPA	Article 4.1: - Storm petrel (breeding) (500 - 5000 pairs, 1 - 6% of the GB population). Article 4.2: - Puffin (breeding) (46,900 pairs, 5% of the <i>F.a.grabae</i> biogeographic population). - Seabird assemblage (breeding).	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.⁴⁴
Mousa SPA	Article 4.1: Storm petrel (breeding) (4,750 pairs, 6% of GB & 2% of total world breeding populations).	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.⁴⁵

⁴¹ <https://sitelink.nature.scot/site/8481>

⁴² <https://sitelink.nature.scot/site/8582>

⁴³ <https://sitelink.nature.scot/site/8511>

⁴⁴ <https://sitelink.nature.scot/site/8581>

⁴⁵ <https://sitelink.nature.scot/site/8551>

Site Name	Qualifying feature(s)	Conservation objective(s)
Noss SPA	Article 4.2: - Kittiwake (breeding CoSA) (7,020 pairs, 1% of the GB population). - Great skua (breeding) (420 pairs, 5% of EC, and 3% of western European). - Guillemot (breeding) (38,970 individuals 3% of EC and 1% of western European). - Puffin (breeding CoSA) (2,348 individuals, over 10% of the minimum qualifying assemblage of 20,000 individuals). - Fulmar (breeding CoSA) (6,350 pairs, 1% of the GB population). - Gannet (breeding) (6,860 pairs, 3% of the western European breeding population). - Seabird assemblage (breeding).	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 species⁴⁶.
Foula SPA	Article 4.2: - Kittiwake (breeding CoSA) (3,840 pairs, 0.8% of the GB population). - Great skua (2,270 pairs, 17% of world biogeographic population). - Guillemot (breeding) (37,500 individuals, 0.8% of the North Atlantic biogeographic population and 4% of the GB population). - Razorbill (breeding CoSA) (6,200 individuals, 4% of the GB population). - Puffin (breeding) (48,000 pairs, 5% of the total <i>F.a.grabae</i> biogeographic population and 11% of the GB population). - Fulmar (breeding CoSA) (46,800 pairs, 9% of the GB population). - Seabird assemblage (breeding).	- To ensure that the qualifying features of Foula SPA and the Seas off Foula SPA are in favourable condition and make an appropriate contribution to achieving FCS. - To ensure that the integrity of Foula SPA and the Seas off Foula SPA is restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature: - The populations of the qualifying features are viable components of Foula SPA and Seas off Foula SPA. - The distributions of the qualifying features throughout Foula SPA and Seas off Foula SPA are maintained by avoiding significant disturbance of the species. - The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained, or where appropriate restored, at Foula SPA and Seas off Foula SPA.⁴⁷
The Shiant Islands SPA	Article 4.2: - Fulmar (breeding CoSA) (6,820 pairs of 1% of the GB population). - Seabird assemblage (breeding).	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.⁴⁸
North Rona and Sula Sgeir SPA	Article 4.1: - Storm petrel (breeding) (>1% of the GB breeding population). Article 4.2: - Fulmar (breeding CoSA) (11,500 pairs; 2% of the GB population). - Seabird assemblage (breeding).	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.⁴⁹

⁴⁶ <https://sitelink.nature.scot/site/8561>

⁴⁷ <https://sitelink.nature.scot/site/8504>

⁴⁸ <https://sitelink.nature.scot/site/8575>

⁴⁹ <https://sitelink.nature.scot/site/8558>

Site Name	Qualifying feature(s)	Conservation objective(s)
Fetlar SPA	Article 4.2: - Great skua (breeding) (508 pairs, 3.7% of world biogeographic population). - Fulmar (breeding CoSA) (9,500 pairs, 2% of the GB population). - Seabird assemblage (breeding).	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.⁵⁰
Hermaness, Saxa Vord and Valla Field SPA	Article 4.2: - Kittiwake (breeding CoSA) (922 pairs, 0.2% of the GB population). - Great skua (breeding) (788 pairs, 9% of the British and 6% of the world population). - Guillemot (breeding CoSA) (25,000 individuals, 2% of the GB population). - Puffin (breeding) (55,000 individuals, 6% of the British and 3% of the total population of the sub-species <i>F.a.grabae</i>). - Fulmar (breeding CoSA) (19,539 pairs, 4% of the GB population). - Gannet (breeding) (16,400 pairs, 8% of the British and 6% of the world population). - Seabird assemblage (breeding).	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.⁵¹
Flannan Isles SPA	Article 4.2: - Fulmar (breeding CoSA) (4,730 pairs, 0.9% of the GB population). - Seabird assemblage (breeding).	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.⁵²
Flamborough & Filey Coast SPA	Article 4.2: - Kittiwake (breeding) (44,520 pairs, 2% of the North Atlantic population). - Herring gull (breeding CoSA). - Guillemot (breeding) (41,607 pairs, 15.6% of the <i>U.a.albionis</i> population). - Razorbill (breeding) (10,570 pairs, 2.3% of the <i>A.t.islandica</i> population). - Fulmar (breeding CoSA). - Gannet (breeding) (8,469 pairs, 2.6% of the North Atlantic population). - Seabird assemblage (breeding).	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; - the extent and distribution of the habitats of the qualifying features; - the structure and function of the habitats of the qualifying features; - the supporting processes on which the habitats of the qualifying features rely; - the population of each of the qualifying features; and - the distribution of the qualifying features within the site.⁵³
St. Kilda SPA	Article 4.2: - Fulmar (breeding CoSA) (62,800 pairs, 12% of the GB population). - Seabird assemblage (breeding).	- To ensure that the qualifying features of St Kilda SPA and the Seas off St Kilda SPA are in favourable condition and make an appropriate contribution to achieving FCS. - To ensure that the integrity of St Kilda SPA and the Seas off St Kilda SPA is restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature:

⁵⁰ <https://sitelink.nature.scot/site/8498>

⁵¹ <https://sitelink.nature.scot/site/8512>

⁵² <https://sitelink.nature.scot/site/8502>

⁵³ <https://publications.naturalengland.org.uk/publication/5400434877399040>

Site Name	Qualifying feature(s)	Conservation objective(s)
		2a. The populations of qualifying features are viable components of St Kilda SPA and Seas off St Kilda SPA. 2b. The distributions of the qualifying features throughout St Kilda SPA and Seas off St Kilda SPA are maintained by avoiding significant disturbance of the species. 2c. The supporting habitats and processes relevant to qualifying features and their prey / food resources are maintained, or where appropriate restored, at St Kilda SPA and / or Seas off St Kilda SPA. ⁵⁴
Mingulay and Berneray SPA	Article 4.2: - Fulmar (breeding CoSA) (10,450 pairs, 2% of the GB population). - Seabird assemblage (breeding).	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.⁵⁵
Ythan Estuary and Meikle Loch Ramsar	Ramsar criterion 2: - Common tern (breeding) (1989 to 1993, up to 265 pairs, up 2% of the GB population). - Little tern (breeding) (1989 to 1993, up to 41 pairs, up to 2% of the GB population). Ramsar criterion 4: - Eider (non-breeding) (winter peak mean of 1,860 individuals, 2% of the GB population). - Redshank (non-breeding) (1,149 individuals, 1% of the GB populations). - Lapwing (non-breeding) (2,542 individuals, 0.2% of the GB population). Ramsar criterion 5: - By regularly supporting waterbirds in numbers of 20,000 individuals or more. In the five-year period 1988/89 to 1992/3 a winter peak mean of 26,400 individual waterbirds was recorded, comprising 8,000 waders and 18,400 wildfowl. Ramsar criterion 6: - Sandwich tern (breeding) (1989 to 1991, up to 1,125 pairs, up to 2% of the Western Europe biogeographic population). - Pink-footed goose (non-breeding) (1988/89 to 1992/93 winter peak mean 17,213 individuals, 9% of the Eastern Greenland / Iceland / UK biogeographic population. Pink footed goose is also a component of the waterbird assemblage.	See the Ythan Estuary, Sands of Forvie and Meikle Loch SPA conservation objectives.

⁵⁴ <https://sitelink.nature.scot/site/8580>

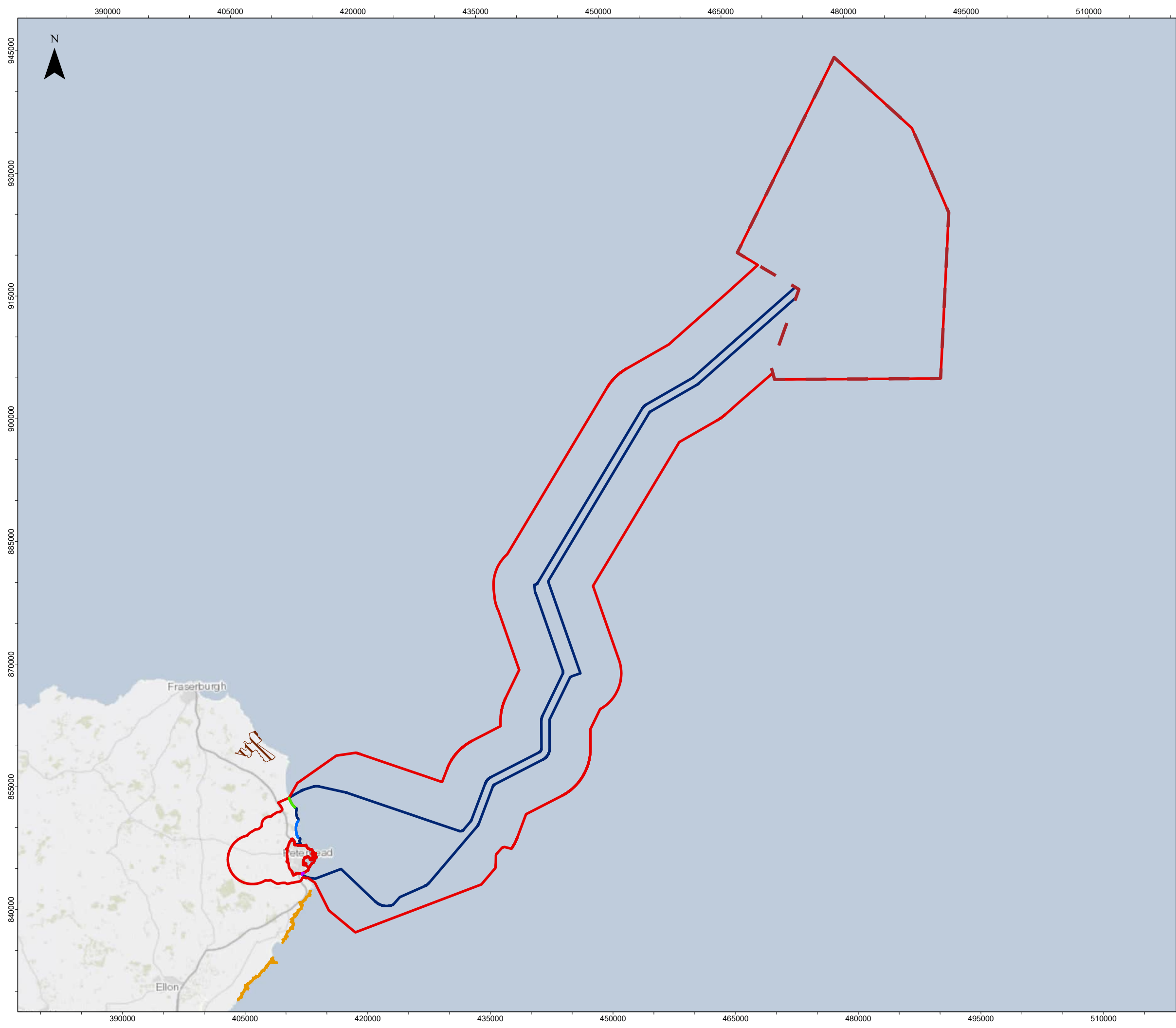
⁵⁵ <https://sitelink.nature.scot/site/8545>

4.1.2 Sites designated for Annex I habitats

- 4.1.2.1 Two sites designated for Annex I habitat interest – Loch of Strathbeg Ramsar and Buchan Ness to Collieston SAC were identified within a 5km (above MLWS) and 20km (below MHWS) search area of the Project Boundary.
- 4.1.2.2 **Figure 4.1** shows the sites designated for Annex I habitats. **Table 4.2** provides details of the Designated sites included for consideration of LSE. The criteria used to identify Designated sites are outlined in **Section 3.4.2**.
- 4.1.2.3 Loch of Strathbeg Ramsar and Buchan Ness to Collieston SAC could be situated within the potential ZOI, therefore both are included for further consideration on this basis.

Table 4.2 Designated sites screened in for consideration of LSE for Annex I habitats

Site name	Approximate distance from the Project Boundary	Site description	Qualifying features	Criteria for consideration in Screening
Loch of Strathbeg Ramsar	4,135m	The Site comprises a shallow naturally eutrophic loch with adjoining reedbeds, freshwater marshes, and alder and willow carr. The calcareous dunes and dune slacks within this site are relatively undisturbed and contain a rich flora. The diversity of plant communities supports a correspondingly diverse invertebrate fauna. The loch constitutes the largest dune slack pool in Britain (200 ha) and the largest water body in the north-east Scottish lowlands. It is separated from the sea by a dune system 0.5-1 km wide.	Ramsar criterion 1 – The loch constitutes the largest dune slack pool in Britain and the largest water body in the north-east Scottish lowlands and is one of very few naturally eutrophic lochs of this size in the region.	Criterion 3
Buchan Ness to Collieston SAC	850m	The vegetated cliff slopes support a wide range of coastal vegetation types with an abundance of local species, such as Scots lovage <i>Ligusticum scoticum</i> and roseroot <i>Sedum rosea</i> and semi-natural plant communities such as maritime heath, acid peatland and brackish flushes. All these are now rare on the coast of the north-east Scotland and this section of the coastline contains some of the best remaining examples. These communities contain several plants which are associated with dry, calcareous grassland including carline thistle <i>Carlina vulgaris</i> and cowslip <i>Primula veris</i> . Sea wormwood <i>Seriphidium maritimum</i> also occurs. The cliffs support a scattered colony of cliff-nesting seabirds.	Annex I habitat that are the primary reason for selection of this site: Vegetated sea cliffs of the Atlantic and Baltic coasts.	Criterion 3



- Project Boundary
- NE7 Option Agreement Area
- Export cable survey corridor zone
- Ramsar: Loch of Strathbeg
- SAC: Buchan Ness to Collieston

Landfall Optioneering Zones

- Scotstown
- Lunderton
- Sandford Bay



	ddmm/yyyy	--	--	--	--
2	24/05/2024	LT	AMc	MR	LG
1	04/12/2023	LT	AMc	MR	LG
REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER

WSP DRAWING NUMBER 808368-WEIS-IA-SC-FG-H3-67233

MarramWind DRAWING NUMBER MAR-GEN-CNS-MAP-WSP-000002

DATUM	ETRS 89	PROJECTION	UTM Zone 30N

SCALE	1:450,000	PAGE SIZE	A3

PROJECT TITLE
MarramWind Offshore Wind Farm

DRAWING TITLE
Figure 4.1 Sites designated for Annex I habitats

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Service Layer Credits: OS Open Background: Contains OS data © Crown Copyright and database right 2020
World Ocean Reference: Esri, UK, Esri, TomTom, Garmin, FAO, NOAA, USGS
World Ocean Base: Esri, GEBCO, Garmin, NaturalVue

NOT TO BE USED FOR NAVIGATION



4.1.3 Sites designated for Annex II marine mammals

4.1.3.1 For marine mammals, HRA Screening primarily focuses on the potential for connectivity between individual marine mammals from designated populations within the relevant management unit (MU) (**Table 4.3**) and the offshore Project area (i.e. a clear source-pathway-receptor relationship). MUs are used for assessment as they are considered to represent the best understanding of species biological populations and any ecological differentiation within such populations. They are best used for HRA Screening as they provide a relevant spatial scale for assessment of environmental impacts resulting from activities associated with the Project. Designated sites included in this assessment are based on the distance of the offshore Project from the Designated site for Annex II marine mammal features, the range of each effect, and the potential for marine mammals from a Designated site to be within range of an effect. **Table 4.3** summarises the relevant MUs for receptor species considered in this assessment.

Table 4.3 Marine mammal receptor management units (Mus)

Receptor Species	Relevant MU(s)
Harbour porpoise	North Sea MU.
Bottlenose dolphin	Coastal East Scotland MU and the Greater North Sea MU.
Grey seal	Moray Firth MU, North Coast and Orkney MU and East Scotland MU.
Harbour seal	Moray Firth MU, North Coast and Orkney MU and East Scotland MU.

4.1.3.2 The HRA Screening exercise will therefore consider Designated sites that meet the following criteria (see **Table 4.4**):

- **Criterion 1:** the distance between the potential effect of the Project and a Designated site with marine mammals as a qualifying feature is within the range for which there could be an interaction (e.g. significant noise propagation from the site is within the ZOI for underwater noise effects);
- **Criterion 2:** the distance between the proposed Project and resources on which the qualifying marine mammal feature depends is within the potential ZOI; and
- **Criterion 3:** the likelihood that a foraging area or a migratory route occurs within the ZOI of the Project.

4.1.3.3 The ZOI will be dependent upon the activity (e.g. UXO clearance, pile driving, vessel disturbance) and the receptor species hearing sensitivities and response to impacts. Expert judgement and a desk-based literature review of impacts associated with the Project aided the determination of ZOIs.

4.1.3.4 Following the above approach, **Table 4.4** provides a list of initial Designated sites screened in for consideration of LSE. For completeness, all SACs that list harbour porpoise as a qualifying feature within the North Sea MU have been included in **Table 4.4**. However, due to the large distance between the potential effects of the Project and the Designated sites outside UK waters (being greater than the distance to the Southern North Sea SAC), these

sites are not likely to have any interaction. As such, they are not considered further in all other sections of this assessment.

Table 4.4 Sites designated for Annex II marine mammal species within relevant management units (Mus) for consideration of LSE for marine mammals. Qualifying features highlighted with an '*' identifies species screened out as the site is outwith the relevant MUs for this species

Site name	Approx. distance from the Project Boundary	Site Description	Qualifying Features	Criteria for consideration in Screening
Moray Firth SAC	OAA: 120km Landfall: 90km	The Moray Firth SAC is located in the inner Moray Firth in north-east Scotland. This SAC lies within the coastal east Scotland MU for bottlenose dolphin which supports 2.8% of the UK population (Inter-Agency Marine Mammal Working Group (IAMMWG), 2015).	Bottlenose dolphin	Criterion 2
Dornoch Firth and Morrich More SAC	OAA: 150km Landfall: 120km	The Dornoch Firth is a large estuary, located in the inner Moray Firth on the east coast of Scotland. This SAC lies within the Moray Firth seal management area (SMA), which supports 2.6% of the Scottish population and 2.2% of the UK population of harbour seal year-round (Special Committee on Seals (SCOS), 2023).	Harbour seal	Not considered further due to no connectivity under Criteria.
Firth of Tay and Eden Estuary SAC	OAA: 165km Landfall: 130km	The Firth of Tay and Eden Estuary SAC is located in the East Coast SMA off the coasts of Perth and Kinross, Fife and Dundee. This SAC supports around 15% of the total SMA population (SCOS, 2023).	Harbour seal	Not considered further due to no connectivity under Criteria.
Sanday SAC	OAA: 170km Landfall: 180km	Sanday SAC is located in the north-east of the Orkney Isles and falls within the North Coast and Orkney SMA. This SAC supports around 5% of the SMA. However, counts are showing a declining trend (SCOS, 2023).	Harbour seal	Not considered further due to no connectivity under Criteria.
Isle of May SAC	OAA: 185km Landfall: 165km	The Isle of May is a small island that supports a breeding colony of grey seals at the entrance of the Firth of Forth, off the coast of Fife. This SAC falls within the East	Grey seal	Not considered further due to no

Site name	Approx. distance from the Project Boundary	Site Description	Qualifying Features	Criteria for consideration in Screening
		Scotland SMA and supports 25% of the total SMA population (SCOS, 2023).		connectivity under Criteria.
Faray and Holm of Faray SAC	OAA: 185km Landfall: 185km	Faray and Holm of Faray SAC include two uninhabited islands in the northern part of Orkney and is located in the North Coast and Orkney SMA. This SAC supports a breeding colony of grey seals and accounts for 10% of the total SMA population (SCOS, 2023).	Grey seal	Not considered further due to no connectivity under Criteria.
Berwickshire and North Northumberland Coast SAC	OAA: 205km Landfall: 185km	Berwickshire and North Northumberland Coast SAC stretches across south-east Scotland and north-east England and is located in the East Scotland SMA. This SAC supports over half the total SMA population (SCOS, 2023).	Grey seal	Not considered further due to no connectivity under Criteria.
Southern North Sea SAC	OAA: 280km Landfall: 290km	The Southern North Sea SAC is located off the east coast of England, stretching from the Dogger Bank to the Straits of Dover. This SAC falls within the North Sea MU for harbour porpoise and supports 17.5% of the total MU population (JNCC, 2023).	Harbour porpoise	Not considered further due to no connectivity under Criteria.
Doggerbank SAC	315km	The Doggerbank SAC is located in the central North Sea and crosses Danish and Dutch waters. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary	Site Description	Qualifying Features	Criteria for consideration in Screening
Klaverbank SAC	400km	The Klaverbank SAC is located in the central North Sea and is located in Dutch waters. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Jyske Rev, Lillefiskerbanke SAC	500km	The Jyske Rev, Lillefiskerbanke SAC is located in Danish waters, in the Skagerak, and falls under the North Sea MU for harbour porpoise.	Harbour porpoise	Not considered further due to no connectivity under Criteria.
Gule Rev SAC	530km	The Gule Rev SAC is located in Danish waters, in the Skagerak, and falls under the North Sea MU for harbour porpoise.	Harbour porpoise	Not considered further due to no connectivity under Criteria.
Knudegrund SAC	530km	The Knudegrund SAC is located in Danish waters, in the Skagerak, and falls under the North Sea MU for harbour porpoise.	Harbour porpoise	Not considered further due to no connectivity under Criteria.
Lønstrup Rødgrund SAC	530km	The Lønstrup Rødgrund SAC is located in Danish waters, in the Skagerak, and falls under the North Sea MU for harbour porpoise.	Harbour porpoise	Not considered further due to no connectivity under Criteria.
Sydlig Nordsø SAC	560km	The Sydlig Nordsø SAC is located in Danish waters and falls under the North Sea MU for harbour porpoise. Although grey and harbour seals are qualifying features,	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary	Site Description	Qualifying Features	Criteria for consideration in Screening
		this site does not overlap with a relevant SMA for the Project.		connectivity under Criteria.
Thyborøn Stenvolde SAC	560km	The Thyborøn Stenvolde SAC is located in Danish waters and falls under the North Sea MU for harbour porpoise.	Harbour porpoise	Not considered further due to no connectivity under Criteria.
Sandbanker ud for Thorsminde SAC	570km	The Sandbanker ud for Thorsminde SAC is located in Danish waters, in the Skagerak, and falls under the North Sea MU for harbour porpoise.	Harbour porpoise	Not considered further due to no connectivity under Criteria.
SPA Ostliche Deutsche Bucht	570km	The SPA Ostliche Deutsche Bucht is located in German waters and falls under the North Sea MU for harbour porpoise. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Sylter Außenriff site of community importance (SCI)	570km	The Sylter Außenriff SCI is located in German waters and falls under the North Sea MU for harbour porpoise. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Noordzeekustzone SAC	600km	The Noordzeekustzone SAC is located in Dutch waters. Although grey and harbour seals are qualifying features,	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no

Site name	Approx. distance from the Project Boundary	Site Description	Qualifying Features	Criteria for consideration in Screening
		this site does not overlap with a relevant SMA for the Project.		connectivity under Criteria.
Store Rev SAC	600km	The Store Rev SAC is located in Danish waters, in the Skagerak, and falls under the North Sea MU for harbour porpoise.	Harbour porpoise	Not considered further due to no connectivity under Criteria.
Borkum-Riffgrund SCI	610km	The Borkum-Riffgrund SCI is located in German waters. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Waddenzee SAC	610km	The Waddenzee SAC is located in Dutch waters. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Vadehavet med Ribe Å, Tved Å og Varde Å vest for Varde SAC	630km	The Vadehavet med Ribe Å, Tved Å og Varde Å vest for Varde SAC is located in Danish waters and falls under the North Sea MU for harbour porpoise. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
NTP S-H Wattenmeer und angrenzende Küstengebiete SAC	640km	The NTP S-H Wattenmeer und angrenzende Küstengebiete SAC is located in German waters. Although grey and harbour seals are qualifying features,	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary	Site Description	Qualifying Features	Criteria for consideration in Screening
		this site does not overlap with a relevant SMA for the Project.		
Nationalpark Niedersächsisches Wattenmeer SAC	660km	The Nationalpark Niedersächsisches Wattenmeer SAC is located in German waters. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Skagens Gren og Skagerak SAC	670km	The Skagens Gren og Skagerak SAC is located in Danish waters, in the Skagerak, and falls under the North Sea MU for harbour porpoise. Although harbour seal is also a qualifying feature, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Harbour seal*	Not considered further due to no connectivity under Criteria.
Oosterschelde Westerschelde & Saeftinghe SAC	680km	The Oosterschelde Westerschelde & Saeftinghe SAC is located in Dutch waters. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Helgoland mit Helgoländer Felssockel SAC	720km	The Helgoland mit Helgoländer Felssockel SAC is located in German waters. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Steingrund SAC	720km	The Steingrund SAC is located in German waters. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.

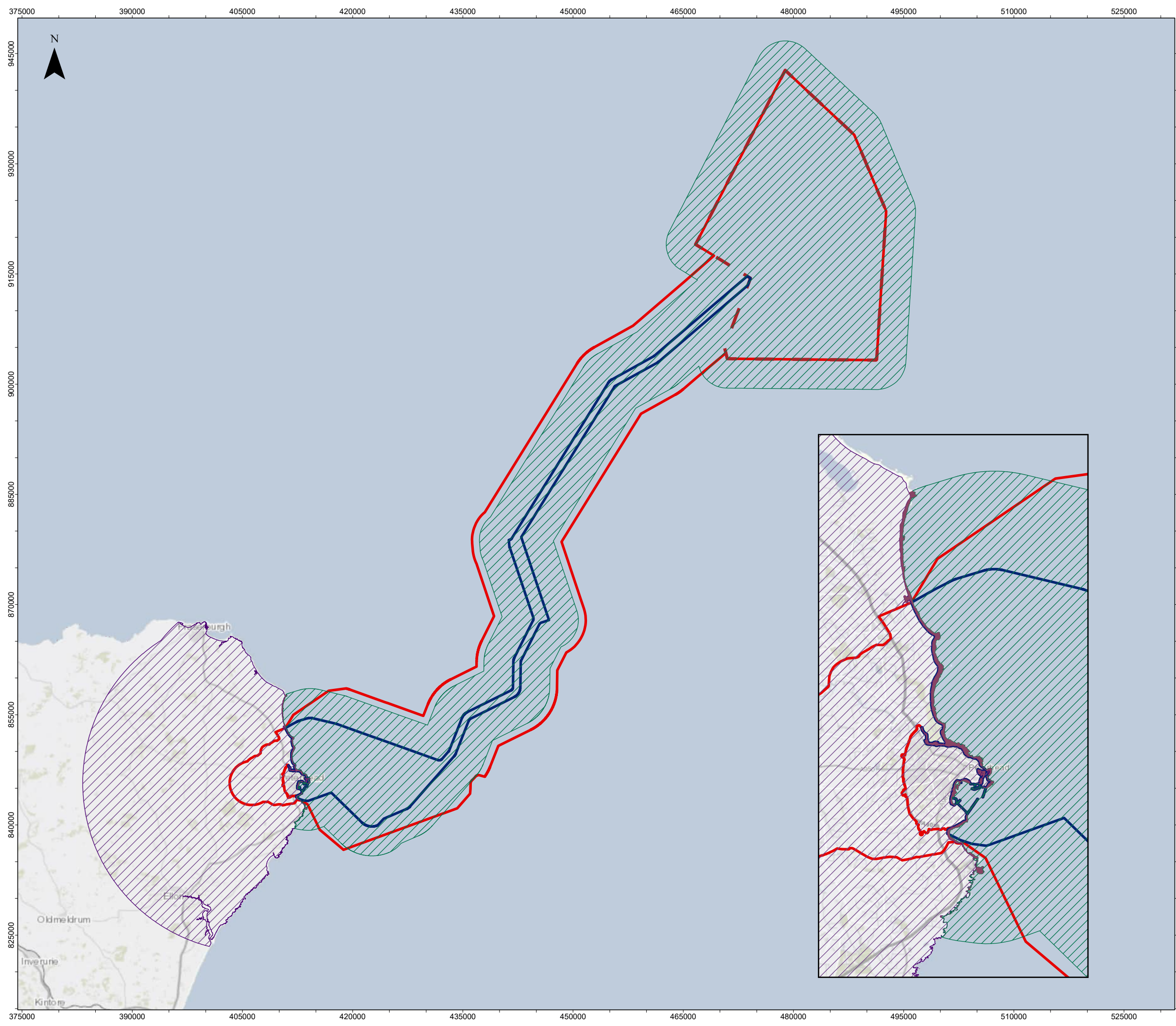
Site name	Approx. distance from the Project Boundary	Site Description	Qualifying Features	Criteria for consideration in Screening
Hamburgisches Wattenmeer SAC	730km	The Hamburgisches Wattenmeer SAC is located in German waters. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Bancs des Flandres SAC	740km	The Bancs des Flandres SAC is located in French waters. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Vlakte van de Raan SAC	740km	The Noordzeekustzone SAC is located in Dutch waters. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
SBZ 1/ZPS 1 SAC SBZ 2/ZPS 2 SAC SBZ 3/ZPS 3 SAC	750km	The SBZ 1-3/ZPS 1-3 SACs are located in Belgian waters and falls under the North Sea MU for harbour porpoise. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Untereelbe SAC	750km	The Untereelbe SAC is located in German waters. Although harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Harbour seal*	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary	Site Description	Qualifying Features	Criteria for consideration in Screening
Vlaamse Banken SAC	750km	The Vlaamse Banken SAC is located in Belgian waters and falls under the North Sea MU for harbour porpoise. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Vlakte van de Raan SAC	750km	The SBZ 1/ZPS 1 SAC is located in Belgian waters and falls under the North Sea MU for harbour porpoise. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Recifs Gris-Nez Blanc-Nez SAC	815km	The Recifs Gris-Nez Blanc-Nez SAC is located in French waters. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Falaises du Cran aux Oeufs et du Cap Gris-Nez, Dunes du Chatelet, Marais de Tardingen et Dunes de Wissant SAC	830km	The Falaises du Cran aux Oeufs et du Cap Gris-Nez, Dunes du Chatelet, Marais de Tardingen et Dunes de Wissant SAC is located in French waters. Although bottlenose dolphin and grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Bottlenose dolphin* Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Baie de Canche et couloir des trois estuaires SAC	840km	The Baie de Canche et couloir des trois estuaires SAC is located in French waters. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.

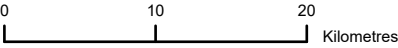
Site name	Approx. distance from the Project Boundary	Site Description	Qualifying Features	Criteria for consideration in Screening
Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC	860km	The Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC is located in French waters. Although grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Baie de Seine orientale SAC	990km	The Baie de Seine orientale SAC is located in French waters. Although bottlenose dolphin and grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Bottlenose dolphin* Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.
Baie de Seine occidentale SAC	1,045km	The Baie de Seine occidentale SAC is located in French waters. Although bottlenose dolphin and grey and harbour seals are qualifying features, this site does not overlap with a relevant SMA for the Project.	Harbour porpoise Bottlenose dolphin* Grey seal* Harbour seal*	Not considered further due to no connectivity under Criteria.

4.1.4 Sites designated for ornithological features

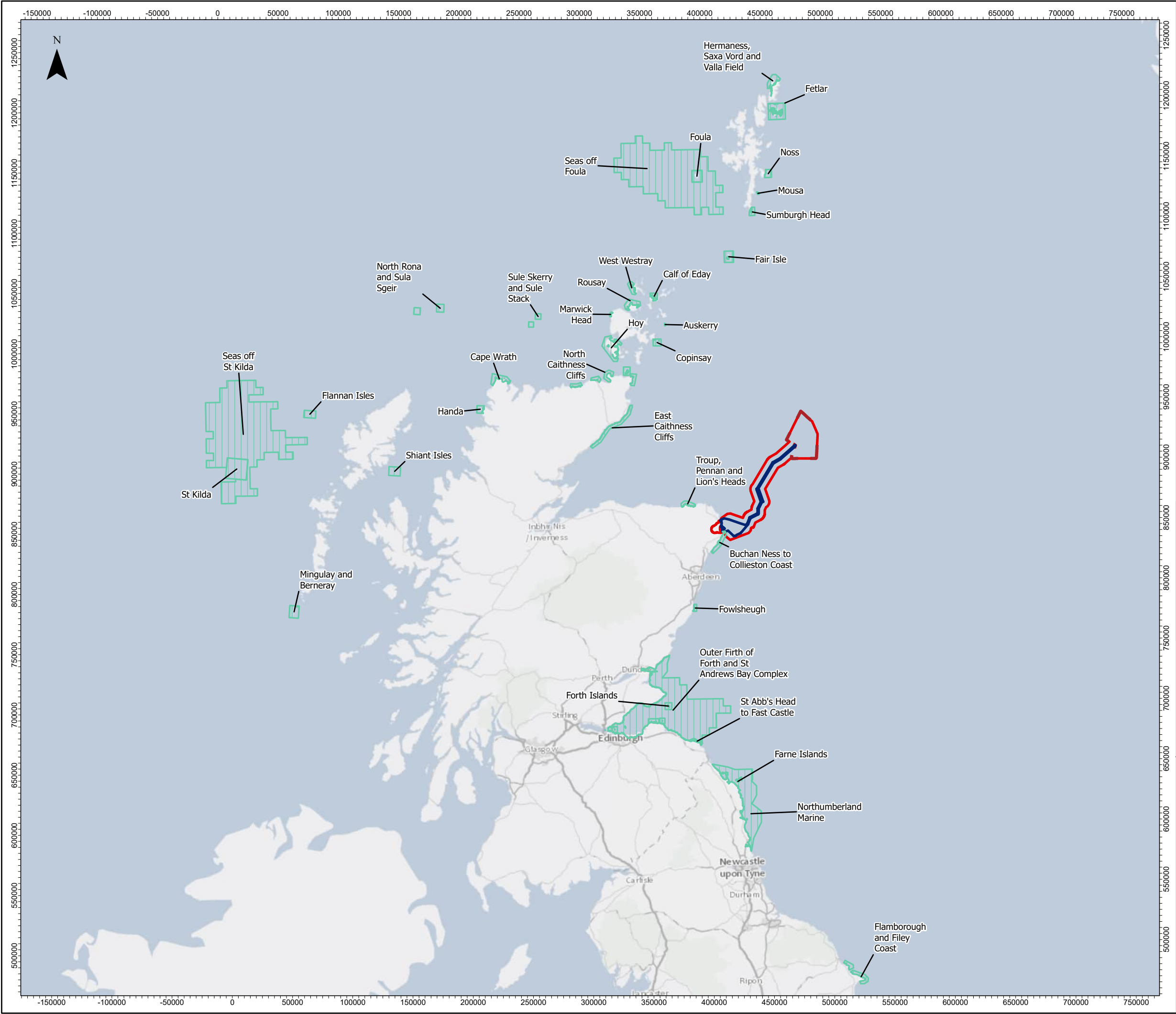
- 4.1.4.1 In accordance with Step 1 of HRA Screening, identification of theoretical connectivity between the Project and Designated sites for onshore, offshore and intertidal ornithological qualifying features has been identified using the three site selection screening criteria described in **Section 4.1.4** and presented again below for clarity.
- 4.1.4.2 The criteria used to identify Designated sites are as follows:
- **Criterion 1:** Designated site(s) boundary has direct overlap with the Project area described in **Chapter 2**;
 - **Criterion 2:** Designated site(s) for qualifying mobile species / features (in marine / freshwater / terrestrial environments) whose range (e.g., foraging, breeding, non-breeding, migratory or natural habitat range) may interact with the Project; and
 - **Criterion 3:** Designated site(s) and / or qualifying interest features with supporting or functionally linked habitat located within a potential receptor ZOI of the Project area described in **Chapter 2**.
- 4.1.4.3 For each of the three criteria, further detail on the approach to identification of connectivity and a summary of Designated sites identified is provided below.
- 4.1.4.4 For ornithology features, there is potential for connectivity and potential impact with the Project infrastructure and proposed works located within the onshore, intertidal and offshore environments. The separation of the three environments is illustrated in **Figure 4.2** and described as follows:
- the onshore environment considers birds occurring landward above MHWS;
 - the intertidal environment considers birds occurring on land that is exposed between the MLWS mark and MHWS; and
 - the offshore environment considers birds using the water (both on and below) and the air above that water seaward of the MHWS.
- 4.1.4.5 The terms onshore, intertidal and offshore therefore refer to environments within which both the Project infrastructure and all ornithological features may interact, rather than a specific set of receptors. As a result, some species (such as gulls and terns) may occur in multiple environments, though the impact pathways within the environments may differ. For this reason, the matrices presented in **Appendix C** have been separated out by environment rather than designated site. This means in some instances (for example Buchan Ness to Collieston Coast SPA) the same designated site may have multiple matrices.
- 4.1.4.6 With respect to intertidal ornithology, consideration was given to each of the proposed Landfall Zones (currently referred to as Scotstown; Lunderton; and Sandford Bay (see **paragraph 2.2.3.43**)) when undertaking the initial screening exercise.
- 4.1.4.7 **Figure 4.3** and **Figure 4.4** shows the sites designated for offshore ornithological features; and intertidal and onshore ornithological features, respectively that have been identified in relation to the described criteria.



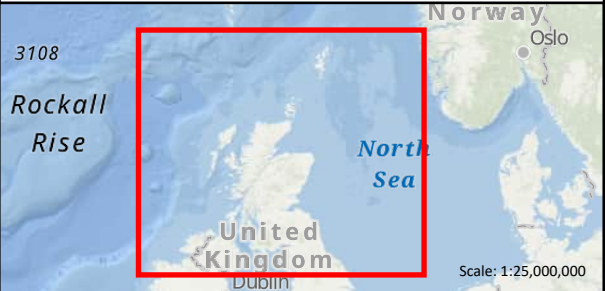
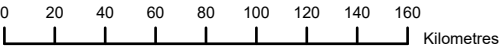
- Project Boundary
- NE7 Option Agreement Area
- Export cable survey corridor zone
- Onshore Ornithology Environment
- Offshore Ornithology Environment
- Intertidal Ornithology Environment



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2	24/05/2024	LT	AMc	MR	LG
1	04/12/2023	LT	AMc	MR	LG
REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER
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MarramWind DRAWING NUMBER		MAR-GEN-CNS-MAP-WSP-000003			
DATUM		ETRS 89		PROJECTION	UTM Zone 30N
SCALE		1:500,000		PAGE SIZE	A3
PROJECT TITLE					
MarramWind Offshore Wind Farm					
DRAWING TITLE					
Figure 4.2 Ornithology environments					
© COPYRIGHT NOTES					
Service Layer Credits: OS Open Background: Contains OS data © Crown Copyright and database right 2020					
World Ocean Reference: Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS					
World Ocean Base: Esri, GEBCO, Garmin, NaturalVue					
NOT TO BE USED FOR NAVIGATION					
			 A joint venture between ScottishPower and Shell UK		



- Project Boundary
- NE7 Option Agreement Area
- Export cable survey corridor zone
- SPA



	ddmm/yyyy	--	--	--	--
2	24/05/2024	LT	AMc	MR	LG
1	04/12/2023	LT	AMc	MR	LG
REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER

WSP DRAWING NUMBER 808368-WEIS-IA-SC-FG-H3-88071

MarramWind DRAWING NUMBER MAR-GEN-CNS-MAP-WSP-000004

DATUM	ETRS 89	PROJECTION	UTM Zone 30N

SCALE	1:3,000,000	PAGE SIZE	A3

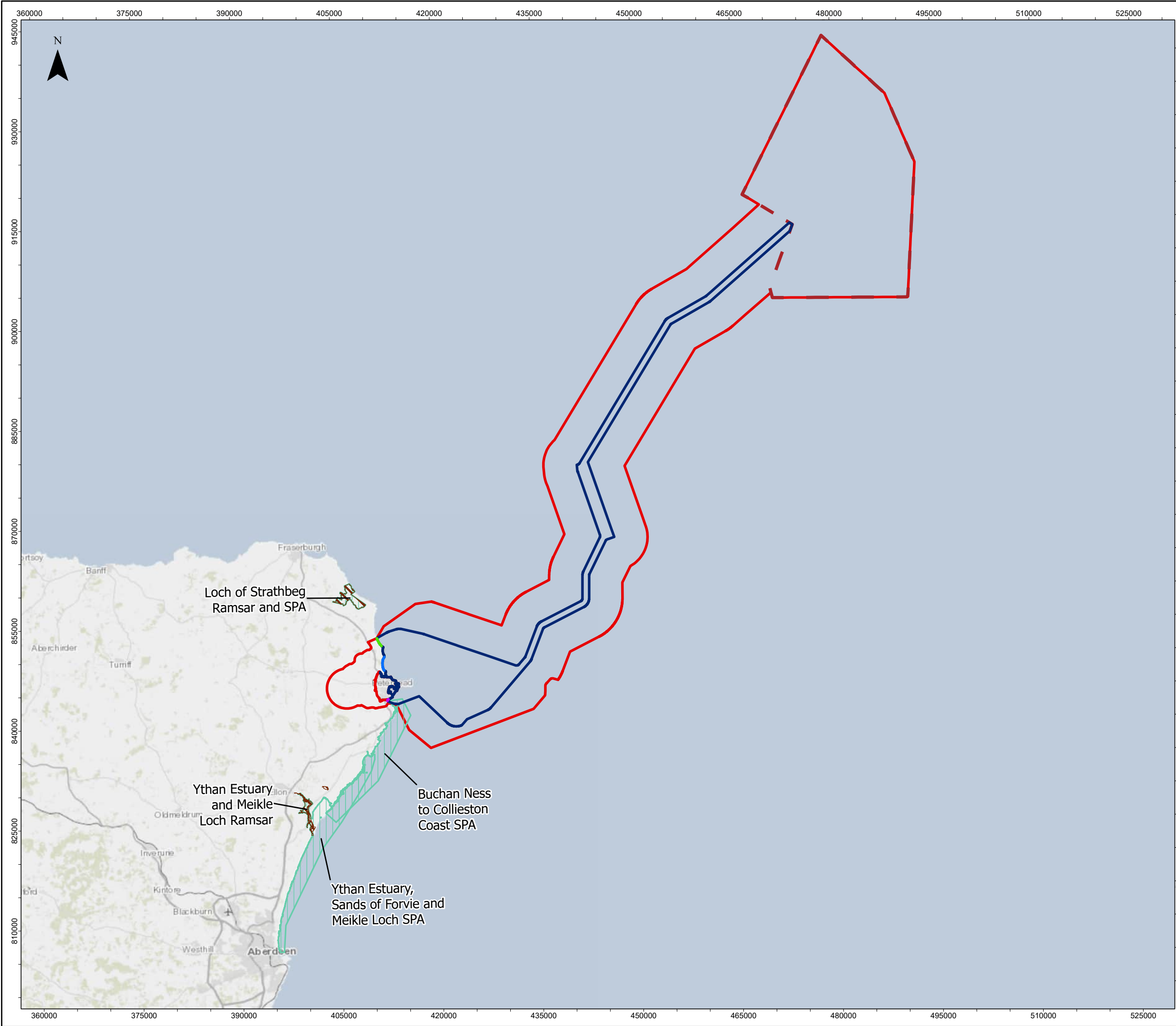
PROJECT TITLE
MarramWind Offshore Wind Farm

DRAWING TITLE
Figure 4.3 Sites designated for offshore ornithological features

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World Ocean Reference: Esri, UK, Esri, TomTom, Garmin, FAO, NOAA, USGS
World Ocean Base: Esri, GEBCO, Garmin, NaturalVue

NOT TO BE USED FOR NAVIGATION

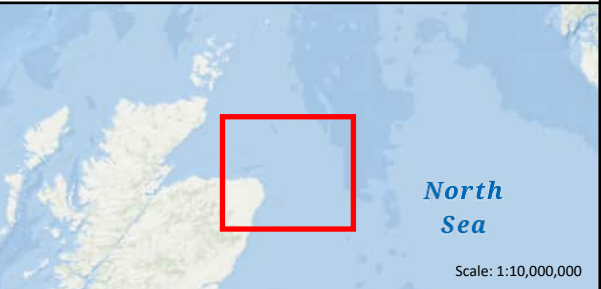
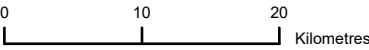




- Project Boundary
- NE7 Option Agreement Area
- Export cable survey corridor zone
- Ramsar Sites
- SPA

Landfall Optioneering Zones

- Scotstown
- Lunderton
- Sandford Bay



REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER
2	24/05/2024	LT	AMc	MR	LG
1	04/12/2023	LT	AMc	MR	LG

WSP DRAWING NUMBER 808368-WEIS-IA-SC-FG-H3-54373

MarramWind DRAWING NUMBER MAR-GEN-CNS-MAP-WSP-000005

DATUM	ETRS 89	PROJECTION	UTM Zone 30N
SCALE	1:550,000	PAGE SIZE	A3

PROJECT TITLE
MarramWind Offshore Wind Farm

DRAWING TITLE
Figure 4.4 Sites designated for intertidal and onshore ornithological features

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NOT TO BE USED FOR NAVIGATION



Criterion 1

Offshore ornithology

- 4.1.4.8 One SPA; Buchan Ness to Collieston Coast SPA was found to directly overlap with the offshore component of the ECC. Therefore, this site and associated designated features have been included for consideration of LSE using Criterion 1.
- 4.1.4.9 No Designated sites were found to have direct overlap with the Project OAA.

Intertidal ornithology

- 4.1.4.10 One SPA; Buchan Ness to Collieston Coast SPA and qualifying features has been included for consideration of LSE based on Criterion 1 where the site overlaps with a component of the Project.

Onshore ornithology

- 4.1.4.11 No Designated sites designated for onshore ornithology qualifying features were found to have direct overlap with onshore components of the Project, therefore no sites were included for consideration of LSE using Criterion 1.

Criterion 2

Offshore ornithology

Breeding season

- 4.1.4.12 The foraging range of seabirds varies both seasonally and by species. During the breeding season, when seabirds are restricted in the distance they can travel for foraging due to site / nest attendance, theoretical connectivity between the Project and Designated sites can be identified using the seabird foraging ranges defined by Woodward *et al.* (2019) as recommended within NatureScot Guidance Note 3 (2023a). The species-specific foraging ranges in Woodward *et al.* (2019) were derived specifically for use within HRA Screening and are calculated based on the review of generic foraging ranges from Thaxter *et al.* (2012), combined with additional evidence from more recent tracking studies for specific colonies. The recommended foraging ranges used to identify breeding season theoretical connectivity are presented in **Table 4.5**. Foraging ranges are presented for species recorded during the breeding season within the 24 months of site-specific Digital Aerial Surveys (DAS) undertaken for the Project to inform baseline characterisation as detailed in **Section 5.4**. Further detail on the breeding season considered for offshore ornithology qualifying features can be found within the Scoping Report (2023), which are in accordance with NatureScot Guidance Note 9 (2023b).

Table 4.5 Seabird foraging ranges used to identify theoretical connectivity during the breeding season in accordance with Criterion 3

Species Name	Recommended Foraging Range (km)	Metric
Kittiwake	300.6	Mean Maximum (MM) plus one standard deviation (SD)
Common gull	50	Maximum (Max) / MM
Great black-backed gull	73	Max / MM
Herring gull	85.6	MM + SD
Arctic tern	40.5	MM + SD
Great skua	931.2	MM + SD
Guillemot	95.2*	MM + SD
Razorbill	122.2**	MM + SD
Puffin	265.4	MM + SD
Storm petrel	336	Max / MM
Fulmar	1,200.2	MM + SD
Manx shearwater	2,365.5	MM + SD
Gannet	509.4***	MM + SD

Table Note: NatureScot Guidance Note 3 (2023a) specifies the following exceptions to recommended foraging ranges, which have been applied where appropriate: *For all Northern Isle SPAs, the recommended foraging range (km) for guillemot is 153.7 km (MM+SD). **For all Northern Isle SPAs, the recommended foraging range for razorbill is 164.6km (MM+SD). ***For gannet, the recommended foraging ranges are 590km (Max) for Forth Islands SPA, 516.7km for Grassholm SPA (Max) and 709km for St Kila SPA (Max).

4.1.4.13 As recommended in Woodward *et al.* (2019), where available, colony-specific tracking data have also been reviewed. Where tracking data show direct overlap with the Project area, the colony will be considered to be within foraging range, even if the colony may be outwith when considering the foraging ranges in **Table 4.5**. Conversely, where tracking data clearly suggests that there is no connectivity between species from a Designated site and the Project, despite being within foraging range using the values in **Table 4.5**, these sites and features have not been taken forward for further consideration under Criterion 2. This is because tracking data would suggest that the potential for connectivity during the breeding season is limited and, therefore an LSE can confidently be excluded at this stage. Based on these assumptions the following qualifying features of Designated sites were included / excluded from further consideration of LSE based on Criterion 3:

- St Abbs Head to Fast Castle SPA kittiwake qualifying feature has been excluded due to tracking data suggesting no potential connectivity.

- Ailsa Craig SPA gannet qualifying feature has been excluded due to tracking data suggesting no potential connectivity.
- Sule Skerry and Sule Stack SPA gannet qualifying feature has been excluded due to tracking data suggesting no potential connectivity.
- Although no tagging data is available for St Kilda SPA great skua qualifying feature, when considering the significant land barriers between the Designated site and the Project, combined with the likelihood that individuals are highly likely to forage primarily within western waters, no potential connectivity has been concluded.

4.1.4.14 Furthermore, evidence gained from tracking adult gannets during the breeding season across a series of colonies is that gannets show 'space partitioning', that is adjacent colonies do not have overlapping foraging areas in the breeding season (Wakefield *et al.*, 2013). When considering this behaviour, potential breeding season connectivity for gannets from the following SPAs can confidently be ruled out:

- Flamborough and Filey Coast SPA;
- North Rona and Sula Sgeir SPA;
- St Kilda SPA; and
- Seas off St Kilda SPA.

4.1.4.15 Lastly, additional consideration has been given to site-specific DAS data collected. Frequency and abundance of records and the flight direction of birds have been reviewed to appraise initial conclusions due to the generic nature of the foraging ranges in **Table 4.5**. Based on these factors the following qualifying features of Designated sites were included / excluded from further consideration of LSE based on Criterion 3:

- Manx shearwater were only recorded within site specific DAS surveys undertaken in July 2022 (n = 3). Due to the extremely low abundance and frequency of this species, any potential impact from the Project can confidently be ruled out as the potential effect when apportioned to the number of individual SPAs within foraging range will almost certainly be undetectable from natural changes in population, therefore no potential for LSE.

Non-breeding season

4.1.4.16 During the non-breeding season, wider mixing of individuals from different colonies occurs and therefore, there is potential for seabirds from Designated sites beyond seabird foraging ranges to have connectivity with the Project area. In the absence of definitive information on known wintering grounds for most seabirds during the non-breeding season, a precautionary approach has been taken that assumes there is potential for connectivity between the Project and any colony that lies within the same discrete region of sea as defined in Furness (2015). This approach is in line with the NatureScot Guidance Note 4 (2023c). For reference, the Project lies within the area defined as the North Sea (and English Channel where appropriate) in Furness (2015).

4.1.4.17 An exception to the approach described above has been considered for guillemot, as suggested within NatureScot Guidance Note 4 (2023c). Recent studies show that guillemot largely remain in the broad vicinity of their breeding colonies during the non-breeding season (Buckingham *et al.*, 2022). Therefore, a screening approach based on a breeding population found within the MM+1SD foraging range of the development has been undertaken following NatureScot Guidance Note 4 (2023c). However, the Applicant would welcome further discussion on potential connectivity with more distant sites based on

interpretation of the Buckingham *et al.*, (2022) data. The approach combines the breeding population found within the MM+1SD foraging range of the Project area and any breeding populations beyond the MM+1SD (that the Buckingham *et al.*, (2022) data suggest ranges over the Project area during the non-breeding season) to define the most appropriate non-breeding population for guillemot.

- 4.1.4.18 For seabird species that are known to remain within UK waters during the non-breeding season, the screening is based on those recorded within the site-specific DAS during the non-breeding season (presented in **Section 5.4**).
- 4.1.4.19 For migrant seabird species, conclusions from the Marine Scotland Science (MSS) strategic assessment of collision risk of offshore wind farms to migrating birds (Wildfowl & Wetlands Trust (WWT) Consulting, 2014 (hereafter referred to as the MSS strategic assessment report) have been considered. For migratory seabirds such as storm petrel, terns and skua species, the MSS strategic assessment suggested that such species tended to follow the coast in migratory bands up to a maximum of 60km offshore. At its closest point to shore, the OAA is located approximately 75km offshore, suggesting no connectivity to migrant seabirds whilst on migration. This conclusion also aligns with the Project's DAS data, which found no records of storm petrel, tern and skua species during the non-breeding season. However, as noted by MD-LOT within the Scoping Opinion for this Project, an update to the MSS strategic assessment report is currently being undertaken. Therefore, upon publication of this work, a review will be undertaken to assess whether the updated conclusions would fundamentally change the Project's conclusion with respect to LSE for migratory seabird species.
- 4.1.4.20 There is no formal recommended guidance on how best to identify non-seabird ornithological qualifying features of Designated sites that may have potential connectivity with an offshore wind farm array area whilst on migration. Considering the known migratory flyways and that the Project is located 75km off the coast of northeast Scotland, it is likely that non-seabirds migrating to and from Fennoscandia only, have any potential connectivity with the Project OAA. Furthermore, the level of confidence regarding tangible connectivity to the Project is likely to decrease the further a Designated site is away from the coast adjacent to the offshore array area, particularly when birds are presumed to cross the sea on a relatively broad front to their main wintering sites. When considering these factors, the identification of potential migratory non-seabird ornithological qualifying features with connectivity to the Project OAA has been restricted to designated sites within close proximity to the coast along the north-east of Scotland as these have the greatest potential for connectivity. This results in a total of 15 SPAs being considered. Of the 15 SPAs identified, the following qualifying features are known to migrate to and from Fennoscandia based on the migratory corridors identified within Woodward *et al.*, (2023) and therefore, have potential connectivity with the Project OAA whilst on migration:
- Loch of Strathbeg SPA: Svalbard barnacle goose, goldeneye and teal identified as having possible connectivity whilst on migration;
 - Ythan Estuary, Sands of Forvie and Meikle Loch SPA: redshank, lapwing and the waterbird assemblage identified as having possible connectivity whilst on migration;
 - Moray Firth SPA: great northern diver, Slavonian grebe, long-tailed duck, common scoter, velvet scoter, goldeneye and red-breasted merganser identified as having possible connectivity whilst on migration;
 - Loch of Skene SPA: goldeneye and goosander identified as having possible connectivity whilst on migration;

- Moray and Nairn Coast SPA: bar-tailed godwit, redshank, red-breasted merganser, dunlin, oystercatcher, wigeon and the waterbird assemblage identified as having possible connectivity whilst on migration;
- Dornoch Firth and Loch Fleet SPA: bar-tailed godwit, wigeon, curlew, teal, redshank, dunlin, oystercatcher and the waterbird assemblage identified as having possible connectivity whilst on migration;
- Inner Moray Firth SPA: bar-tailed godwit, red-breasted merganser, redshank, curlew, goosander, goldeneye, teal, wigeon, oystercatcher and the waterbird assemblage identified as having possible connectivity whilst on migration;
- Cromarty Firth SPA: bar-tailed godwit, redshank, curlew, red-breasted merganser, pintail, wigeon, dunlin, oystercatcher and the waterbird assemblage identified as having possible connectivity whilst on migration;
- Loch Ashie SPA: Slavonian grebe identified as having possible connectivity whilst on migration;
- Caithness and Sutherland Peatlands SPA: common scoter, wigeon, and short-eared owl identified as having possible connectivity whilst on migration; and
- Loch Flemington SPA: Slavonian grebe identified as having possible connectivity whilst on migration.

4.1.4.21 Of the 15 SPAs identified, the following Designated sites have been found to have no qualifying features with potential migratory connectivity with the Project OAA:

- Loch Spynie SPA;
- Loch Eye SPA;
- Caithness Lochs SPA; and
- Strath Carnaig and Strath Fleet Moors SPA.

4.1.4.22 Following the above approach, **Table 4.6** provides a list of initial Designated sites and qualifying features included for consideration of LSE based on Criterion 2 for offshore ornithology.

Intertidal and onshore ornithology

4.1.4.23 In accordance with NatureScot Guidance Note 4 (2023), potential connectivity to an SPA is defined by a search buffer of 15km for inshore wintering waterfowl. In the absence of guidance specific for wading birds, the same principle for connectivity has been applied for that species group. Geese and swans have been assessed using a 20km search buffer. These distances are based upon professional judgement in conjunction with published guidance (Cutts *et al.*, 2013; Scottish Natural Heritage, 2016; Scottish Natural Heritage, 2017; Jarrett *et al.*, 2018; Goodship and Furness, 2022; NatureScot, 2023).

4.1.4.24 Due to lack of specific guidance for intertidal connectivity for seabirds, distances have been identified using expert judgement in combination with published guidance and literature (Garthe and Hüppop, 2004; Woodward *et al.*, 2019). A connectivity distance of 20km was concluded as appropriate for seabird species given the habitats present. Designated sites with seabird qualifying features that lie beyond the 20km mark from each Landfall Zone were not included in this screening step due to the limited spatial and temporal impacts associated with cable installation and removal. Therefore, no LSE at these distances are expected, particularly when considering available suitable habitat elsewhere.

- 4.1.4.25 Following the above approach, **Table 4.7** and **Table 4.8** provides a list of initial Designated sites and qualifying features included for consideration of LSE based on Criterion 2 for intertidal ornithology and onshore ornithology, respectively.

Criterion 3

Offshore ornithology

- 4.1.4.26 Consideration of designated functionally linked habitat (Marine SPAs) for offshore ornithology has been considered in accordance with NatureScot Guidance Note 4 (2023c). As stated within the guidance note, a maximum theoretical connectivity distance of 15km is advised for the majority of ornithological features with the exception wintering gulls, whereby the recommended breeding foraging ranges in Woodward *et al.*, (2019) are instead advised. No named designated functionally linked habitat for offshore ornithology qualifying features were found to have connectivity, therefore no sites were included for consideration of LSE using Criterion 3.

Intertidal and onshore ornithology

- 4.1.4.27 Species that are qualifying features of Designated sites may be mobile and not confined to the boundary of the Designated site. For example, wintering waterbirds may forage or migrate in marine, intertidal or onshore areas outside of the Designated site. Although these marine, intertidal or onshore areas are not part of the Designated site, they can be considered 'functionally linked' because they serve a function for waterfowl that are qualifying features of the Designated site. Account must be taken of such functionally linked land in the AA process since, for instance, the loss of such areas to development could potentially adversely affect the survival of those wintering waterbirds and lead to a reduction in the population of birds within the Designated site. How waterbirds may utilise such functionally linked areas may change seasonally and, therefore, consideration of functionally linked areas has been included when defining connectivity for screening Criterion 3. Following the above approach, **Table 4.7** provides a list of initial Designated sites and qualifying features included for consideration of LSE based on Criterion 3. **Table 4.8** provides a list of initial Designated sites and qualifying features included for consideration of LSE for onshore ornithology based on Criterion 3.

Table 4.6 Initial Designated sites screened in for consideration of LSE for offshore ornithology

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
Buchan Ness to Collieston Coast SPA	81.99km	Within Project Boundary.	Kittiwake (breeding CoSA).	Criterion 1 & 2 (breeding and non-breeding season).
			Herring gull (breeding CoSA).	Criterion 1 & 2 (non-breeding season only).
			Guillemot (breeding CoSA).	Criterion 1 & 2 (breeding and non-breeding season).
			Fulmar (breeding CoSA).	Criterion 1 & 2 (breeding and non-breeding season).

⁵⁶ Distances are straight-line and, therefore, may not be the same as the marine impact pathway distance due to the presence of geographical land barriers.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Shag (breeding CoSA).	Criterion 1 (ECC only).
			Seabird assemblage (breeding).	Criterion 1 & 2 (breeding and non-breeding season).
Loch of Strathbeg SPA / Ramsar	76.70km	4km	Svalbard barnacle goose (non-breeding).	Criterion 2 (non-breeding season only).
			Waterfowl assemblage (non-breeding).	Criterion 2 (non-breeding season only).
			Teal (CoWA).	Criterion 2 (non-breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Goldeneye (CoWA).	Criterion 2 (non-breeding season only).
			Greylag goose (non-breeding).	Not considered further due to no connectivity under Criteria.
			Pink-footed goose (non-breeding).	Not considered further due to no connectivity under Criteria.
			Whooper swan (non-breeding).	Not considered further due to no connectivity under Criteria.
			Sandwich tern (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
Troup, Pennan and Lion's Heads SPA	88.79km	24km	Kittiwake (breeding).	Criterion 2 (breeding and non-breeding season).
			Herring gull (breeding CoSA).	Criterion 2 (non-breeding season only).
			Guillemot (breeding).	Criterion 2 (breeding and non-breeding season).
			Razorbill (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Fulmar (breeding CoSA).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
Ythan Estuary, Sands of Forvie and Meikle Loch SPA	90.99km	6km	Waterbird assemblage (non-breeding).	Criterion 2 (non-breeding season only).
			Lapwing (CoWA) (non-breeding).	Criterion 2 (non-breeding season only).
			Redshank (CoWA) (non-breeding).	Criterion 2 (non-breeding season only).
			Pink-footed goose (non-breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Sandwich tern (breeding).	Not considered further due to no connectivity under Criteria.
			Common tern (breeding).	Not considered further due to no connectivity under Criteria.
			Little tern (breeding).	Not considered further due to no connectivity under Criteria.
			Eider (CoWA) (non-breeding).	Not considered further due to no connectivity under Criteria.
Moray Firth SPA	116.74km	55km	Great northern diver (non-breeding).	Criterion 2 (non-breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Slavonian grebe (non-breeding).	Criterion 2 (non-breeding season only).
			Long-tailed duck (non-breeding).	Criterion 2 (non-breeding season only).
			Common scoter (non-breeding).	Criterion 2 (non-breeding season only).
			Velvet scoter (non-breeding).	Criterion 2 (non-breeding season only).
			Goldeneye (non-breeding).	Criterion 2 (non-breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Red-breasted merganser (non-breeding).	Criterion 2 (non-breeding season only).
			Red-throated diver (non-breeding).	Not considered further due to no connectivity under Criteria.
			Scaup (non-breeding).	Not considered further due to no connectivity under Criteria.
			Eider (non-breeding).	Not considered further due to no connectivity under Criteria.
			Shag (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
Loch of Skene SPA	132.83km	48km	Goldeneye (non-breeding).	Criterion 2 (non-breeding season only).
			Goosander (non-breeding).	Criterion 2 (non-breeding season only).
			Greylag goose (non-breeding).	Not considered further due to no connectivity under Criteria.
Fowlsheugh SPA	144.62km	145km	Kittiwake (breeding).	Criterion 2 (breeding and non-breeding season).
			Herring gull (breeding CoSA).	Criterion 2 (non-breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Guillemot (breeding).	Not considered further due to no connectivity under Criteria.
			Razorbill (breeding CoSA).	Criterion 2 (non-breeding season only).
			Fulmar (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
East Caithness Cliffs SPA	131.5km	130km	Kittiwake (breeding).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Great black-backed gull (breeding CoSA).	Criterion 2 (non-breeding season only).
			Herring gull (breeding).	Criterion 2 (non-breeding season only).
			Guillemot (breeding).	Not considered further due to no connectivity under Criteria.
			Razorbill (breeding).	Criterion 2 (non-breeding season only).
			Fulmar (breeding CoSA).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Shag (breeding).	Not considered further due to no connectivity under Criteria.
			Cormorant (breeding).	Not considered further due to no connectivity under Criteria.
			Peregrine (breeding).	Not considered further due to no connectivity under Criteria.
North Caithness Cliffs SPA	133.99km	135km	Kittiwake (breeding CoSA).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Guillemot (breeding).	Not considered further due to no connectivity under Criteria.
			Razorbill (breeding CoSA).	Criterion 2 (non-breeding season only).
			Puffin (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Fulmar (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Peregrine (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Seabird assemblage (breeding and non-breeding).	Criterion 2 (breeding and non-breeding season).
Moray and Nairn Coast SPA	170.49km	77km	Pink-footed goose (non-breeding).	Not considered further due to no connectivity under Criteria.
			Greylag goose (non-breeding).	Not considered further due to no connectivity under Criteria.
			Bar-tailed godwit (non-breeding).	Criterion 2 (non-breeding season only).
			Red-breasted merganser (non-breeding).	Criterion 2 (non-breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Wigeon (non-breeding).	Criterion 2 (non-breeding season only).
			Redshank (non-breeding).	Criterion 2 (non-breeding season only).
			Dunlin (non-breeding).	Criterion 2 (non-breeding season only).
			Oystercatcher (non-breeding).	Criterion 2 (non-breeding season only).
			Osprey (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Waterbird assemblage (non-breeding).	Criterion 2 (non-breeding season only).
Dornoch Firth and Loch Fleet SPA	174.56km	121km	Greylag goose (non-breeding).	Not considered further due to no connectivity under Criteria.
			Bar-tailed godwit (non-breeding).	Criterion 2 (non-breeding season only).
			Wigeon (non-breeding).	Criterion 2 (non-breeding season only).
			Osprey (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Waterbird assemblage (non-breeding).	Criterion 2 (non-breeding season only).
			Teal (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).
			Scaup (non-breeding) (CoWA).	Not considered further due to no connectivity under Criteria.
			Curlew (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).
			Redshank (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Dunlin (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).
			Oystercatcher (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).
Inner Moray Firth SPA	192.48km	127km	Greylag goose (non-breeding).	Not considered further due to no connectivity under Criteria.
			Red-breasted merganser (non-breeding).	Criterion 2 (non-breeding season only).
			Bar-tailed godwit (non-breeding).	Criterion 2 (non-breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Redshank (non-breeding).	Criterion 2 (non-breeding season only).
			Common tern (breeding).	Not considered further due to no connectivity under Criteria.
			Osprey (breeding).	Not considered further due to no connectivity under Criteria.
			Waterbird assemblage (non-breeding).	Criterion 2 (non-breeding season only).
			Cormorant (non-breeding) (CoWA).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Teal (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).
			Wigeon (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).
			Goldeneye (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).
			Goosander (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).
			Scaup (non-breeding) (CoWA).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Curlew (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).
			Oystercatcher (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).
Cromarty Firth SPA	190.99km	133km	Whooper swan (non-breeding).	Not considered further due to no connectivity under Criteria.
			Greylag goose (non-breeding).	Not considered further due to no connectivity under Criteria.
			Bar-tailed godwit (non-breeding).	Criterion 2 (non-breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Common tern (breeding).	Not considered further due to no connectivity under Criteria.
			Osprey (breeding).	Not considered further due to no connectivity under Criteria.
			Waterbird assemblage (non-breeding).	Criterion 2 (non-breeding season only).
			Red-breasted merganser (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).
			Scaup (non-breeding) (CoWA).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Pintail (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).
			Wigeon (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).
			Redshank (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).
			Curlew (non-breeding).	Criterion 2 (non-breeding season only).
			Oystercatcher (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Dunlin (non-breeding) (CoWA).	Criterion 2 (non-breeding season only).
			Knot (non-breeding) (CoWA).	Not considered further due to no connectivity under Criteria.
Loch Ashie SPA	218.01km	148km	Slavonian grebe.	Criterion 2 (non-breeding season only).
Caithness and Sunderland Peatlands SPA	138.52km	126km	Red-throated diver (breeding).	Not considered further due to no connectivity under Criteria.
			Black-throated diver (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Common scoter (breeding).	Criterion 2 (non-breeding season only).
			Wigeon (breeding).	Criterion 2 (non-breeding season only).
			Golden plover (breeding).	Not considered further due to no connectivity under Criteria.
			Wood sandpiper (breeding).	Not considered further due to no connectivity under Criteria.
			Dunlin (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Greenshank (breeding).	Criterion 2 (non-breeding season only).
			Short-eared owl (breeding).	Criterion 2 (non-breeding season only).
			Merlin (breeding).	Not considered further due to no connectivity under Criteria.
			Hen harrier (breeding).	Not considered further due to no connectivity under Criteria.
			Golden eagle (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
Loch Flemington SPA	196.56km	130km	Slavonian grebe (breeding).	Criterion 2 (non-breeding season only).
Forth Islands SPA	225.93km	225km	Kittiwake (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Herring gull (breeding CoSA).	Criterion 2 (non-breeding season only).
			Razorbill (breeding CoSA).	Criterion 2 (non-breeding season only).
			Puffin (breeding).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Gannet (breeding).	Criterion 2 (breeding and non-breeding season).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Lesser black-backed gull (breeding).	Not considered further due to no connectivity under Criteria.
			Sandwich tern (breeding).	Not considered further due to no connectivity under Criteria.
			Roseate tern (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Common tern (breeding).	Not considered further due to no connectivity under Criteria.
			Arctic tern (breeding).	Not considered further due to no connectivity under Criteria.
			Shag (breeding).	Not considered further due to no connectivity under Criteria.
			Guillemot (breeding) (CoSA).	Not considered further due to no connectivity under Criteria.
			Cormorant (breeding) (CoSA).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
Copinsay SPA	127.69km	130km	Kittiwake (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Great black-backed gull (breeding CoSA).	Criterion 2 (non-breeding season only).
			Guillemot (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Fulmar (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
Hoy SPA	154.71km	155km	Kittiwake (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Great black-backed gull (breeding CoSA).	Criterion 2 (non-breeding season only).
			Great skua (breeding).	Criterion 2 (breeding season only).
			Puffin (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Fulmar (breeding CoSA).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Red-throated diver (breeding).	Not considered further due to no connectivity under Criteria.
			Guillemot (breeding).	Not considered further due to no connectivity under Criteria.
			Peregrine (breeding).	Not considered further due to no connectivity under Criteria.
Auskerry SPA	132.54km	135km	Storm-petrel (breeding).	Criterion 2 (breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Arctic tern (breeding).	Not considered further due to no connectivity under Criteria.
St. Abb's Head to Fast Castle SPA	245.87km	245km	Kittiwake (breeding CoSA).	Criterion 2 (non-breeding season only).
			Herring gull (breeding CoSA).	Criterion 2 (non-breeding season only).
			Razorbill (breeding CoSA).	Criterion 2 (non-breeding season only).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Guillemot (breeding) (CoSA).	Not considered further due to no connectivity under Criteria.
			Shag (breeding) (CoSA).	Not considered further due to no connectivity under Criteria.
Fair Isle SPA	132.96km	135km	Kittiwake (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Great skua (breeding CoSA).	Criterion 2 (breeding season only).
			Guillemot (breeding).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Razorbill (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Puffin (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Fulmar (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Gannet (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Arctic tern (breeding).	Not considered further due to no connectivity under Criteria.
			Fair Isle wren (breeding).	Not considered further due to no connectivity under Criteria.
			Arctic skua (breeding).	Not considered further due to no connectivity under Criteria.
			Shag (breeding) (CoSA).	Not considered further due to no connectivity under Criteria.
Calf of Eday SPA	150.25km	160km	Kittiwake (breeding CoSA).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Great black-backed gull (breeding CoSA).	Criterion 2 (non-breeding season only).
			Guillemot (breeding CoSA).	Criterion 2 (non-breeding season only).
			Fulmar (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Cormorant (breeding CoSA).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
Rousay SPA	158.88km	160km	Kittiwake (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Fulmar (breeding CoSA).	Criterion 2 (breeding season only).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Arctic tern (breeding).	Not considered further due to no connectivity under Criteria.
			Arctic skua (breeding CoSA).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Guillemot (breeding CoSA).	Not considered further due to no connectivity under Criteria.
Marwick Head SPA	175.85km	190km	Kittiwake (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Guillemot (breeding).	Not considered further due to no connectivity under Criteria.
West Westray SPA	167.27km	170km	Kittiwake (breeding CoSA).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Razorbill (breeding CoSA).	Criterion 2 (non-breeding season only).
			Fulmar (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Arctic tern (breeding).	Not considered further due to no connectivity under Criteria.
			Guillemot (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Arctic skua (breeding CoSA).	Not considered further due to no connectivity under Criteria.
Farne Islands SPA	267.78km	270km	Kittiwake (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Puffin (breeding CoSA).	Criterion 2 (non-breeding season only).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Sandwich tern (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Roseate tern (breeding).	Not considered further due to no connectivity under Criteria.
			Common tern (breeding).	Not considered further due to no connectivity under Criteria.
			Arctic tern (breeding).	Not considered further due to no connectivity under Criteria.
			Guillemot (breeding).	Not considered further due to no connectivity under Criteria.
			Cormorant (breeding, CoSA).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Shag (breeding, CoSA).	Not considered further due to no connectivity under Criteria.
Cape Wrath SPA	235.00km	240km	Puffin (breeding CoSA).	Criterion 2 (non-breeding season only).
			Fulmar (breeding CoSA).	Criterion 2 (breeding season only).
			Kittiwake (breeding, CoSA).	Criterion 2 (breeding season only).
			Razorbill (breeding, CoSA).	Criterion 2 (breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Guillemot (breeding, CoSA).	Not considered further due to no connectivity under Criteria.
Sumburgh Head SPA	163.60km	165km	Kittiwake (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Fulmar (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Arctic tern (breeding).	Not considered further due to no connectivity under Criteria.
			Guillemot (breeding, CoSA).	Not considered further due to no connectivity under Criteria.
Handa SPA	260.64km	190km	Great skua (breeding CoSA).	Criterion 2 (breeding season only).
			Fulmar (breeding CoSA).	Criterion 2 (breeding season only).
			Kittiwake (breeding CoSA).	Criterion 2 (breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Razorbill (breeding).	Criterion 2 (breeding season only).
			Guillemot (breeding CoSA).	Not considered further due to no connectivity under Criteria.
Sule Skerry and Sule Stack SPA	229.32km	230km	Puffin (breeding).	Criterion 2 (breeding and non-breeding season).
			Storm petrel (breeding).	Criterion 2 (breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Leach's storm petrel (breeding).	Criterion 2 (breeding season only).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Gannet (breeding).	Not considered further due to no connectivity under Criteria.
			Guillemot (breeding CoSA).	Not considered further due to no connectivity under Criteria.
			Shag (breeding CoSA).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
Mousa SPA	179.98km	180km	Storm petrel (breeding).	Criterion 2 (breeding season only).
			Arctic tern (breeding).	Not considered further due to no connectivity under Criteria.
Noss SPA	192.01km	190km	Kittiwake (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Great skua (breeding).	Criterion 2 (breeding season only).
			Guillemot (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Puffin (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Fulmar (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Gannet (breeding).	Criterion 2 (breeding and non-breeding season).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
Foula SPA	204.39km	205km	Kittiwake (breeding CoSA).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Great skua (breeding).	Criterion 2 (breeding season only).
			Guillemot (breeding).	Not considered further due to no connectivity under Criteria.
			Razorbill (breeding CoSA).	Criterion 2 (non-breeding season only).
			Puffin (breeding).	Criterion 2 (breeding and non-breeding season).
			Fulmar (breeding CoSA).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Arctic tern (breeding).	Not considered further due to no connectivity under Criteria.
			Shag (breeding).	Not considered further due to no connectivity under Criteria.
			Arctic skua (breeding CoSA).	Not considered further due to no connectivity under Criteria.
			Red-throated diver (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
The Shiant Islands SPA	321.09km	370km	Fulmar (breeding CoSA).	Criterion 2 (breeding season only).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Greenland barnacle goose (non-breeding).	Not considered further due to no connectivity under Criteria.
			Razorbill (breeding).	Not considered further due to no connectivity under Criteria.
			Puffin (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Shag (breeding).	Not considered further due to no connectivity under Criteria.
			Kittiwake (breeding, CoSA).	Not considered further due to no connectivity under Criteria.
			Guillemot (breeding, CoSA).	Not considered further due to no connectivity under Criteria.
North Rona and Sula Sgeir SPA	308.32km	305km	Storm petrel (breeding).	Criterion 2 (breeding season only).
			Leach's storm petrel (breeding).	Criterion 2 (breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Fulmar (breeding CoSA).	Criterion 2 (breeding season only).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Guillemot (breeding).	Not considered further due to no connectivity under Criteria.
			Gannet (breeding).	Not considered further due to no connectivity under Criteria.
			Kittiwake (breeding CoSA).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Great black-backed gull (breeding CoSA).	Not considered further due to no connectivity under Criteria.
			Razorbill (breeding CoSA).	Not considered further due to no connectivity under Criteria.
			Puffin (breeding CoSA).	Not considered further due to no connectivity under Criteria.
Fetlar SPA	239.02km	240km	Great skua (breeding).	Criterion 2 (breeding season only).
			Fulmar (breeding CoSA).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Arctic tern (breeding).	Not considered further due to no connectivity under Criteria.
			Whimbrel (breeding).	Not considered further due to no connectivity under Criteria.
			Dunlin (breeding).	Not considered further due to no connectivity under Criteria.
			Red-necked phalarope (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Arctic skua (breeding CoSA).	Not considered further due to no connectivity under Criteria.
Hermaness, Saxa Vord and Valla Field	259.03km	275km	Kittiwake (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Great skua (breeding).	Criterion2 (breeding season only).
			Guillemot (breeding CoSA).	Not considered further due to no connectivity under Criteria.
			Puffin (breeding).	Criterion 2 (non-breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Fulmar (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Gannet (breeding).	Criterion 2 (breeding and non-breeding season).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Red-throated diver (breeding).	Not considered further due to no connectivity under Criteria.
			Shag (breeding CoSA).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
Flannan Isles	391.33km	410km	Fulmar (breeding CoSA).	Criterion 2 (breeding season only).
			Leach's storm petrel (breeding).	Criterion 2 (breeding season only).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Kittiwake (breeding, CoSA).	Not considered further due to no connectivity under Criteria.
			Guillemot (breeding, CoSA).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Razorbill (breeding, CoSA).	Not considered further due to no connectivity under Criteria.
			Puffin (breeding, CoSA).	Not considered further due to no connectivity under Criteria.
Flamborough & Filey Coast SPA	417.31km	420km	Kittiwake (breeding).	Criterion 2 (non-breeding season only).
			Herring gull (breeding CoSA).	Criterion 2 (non-breeding season only).
			Guillemot (breeding).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Razorbill (breeding).	Criterion 2 (non-breeding season only).
			Fulmar (breeding CoSA).	Criterion 2 (breeding and non-breeding season).
			Gannet (breeding).	Criterion 2 (non-breeding season only).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Puffin (breeding CoSA).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Cormorant (breeding CoSA).	Not considered further due to no connectivity under Criteria.
			Shag (breeding CoSA).	Not considered further due to no connectivity under Criteria.
St. Kilda SPA	447.31km	480km	Fulmar (breeding CoSA).	Criterion 2 (breeding season only).
			Great skua (breeding).	Criterion 2 (breeding season only).
			Leach's storm petrel (breeding).	Criterion 2 (breeding season only).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).
			Storm petrel (breeding).	Not considered further due to no connectivity under Criteria.
			Puffin (breeding).	Not considered further due to no connectivity under Criteria.
			Gannet (breeding).	Not considered further due to no connectivity under Criteria.
			Kittiwake (breeding CoSA).	Not considered further due to no connectivity under Criteria.

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Guillemot (breeding CoSA).	Not considered further due to no connectivity under Criteria.
			Razorbill (breeding CoSA).	Not considered further due to no connectivity under Criteria.
			Manx shearwater (breeding CoSA).	Not considered further due to no connectivity under Criteria.
Mingulay and Berneray	427.04km	357km	Fulmar (breeding CoSA).	Criterion 2 (breeding season only).
			Seabird assemblage (breeding).	Criterion 2 (breeding and non-breeding season).

Site name	Approx. distance from the Project Boundary ⁵⁶		Qualifying features	Criteria for consideration in Screening
	Distance from OAA	Distance from offshore ECC		
			Razorbill (breeding).	Not considered further due to no connectivity under Criteria.
			Kittiwake (breeding, CoSA).	Not considered further due to no connectivity under Criteria.
			Guillemot (breeding, CoSA).	Not considered further due to no connectivity under Criteria.
			Puffin (breeding, CoSA).	Not considered further due to no connectivity under Criteria.
			Shag (breeding, CoSA).	Not considered further due to no connectivity under Criteria.

Table 4.7 Initial Designated sites screened in for consideration of LSE for intertidal ornithology

Site name	Approx. distance from Landfall Zone	Site Description	Qualifying features	Criteria for consideration in Screening
Buchan Ness to Collieston Coast SPA	Scotstown: 8.31km Lunderton: 4.62km Sandford Bay: Overlaps	Buchan Ness to Collieston Coast SPA is a stretch of south-east facing cliff in Aberdeenshire, Scotland. The 15km stretch of cliffs, formed of granite, quartzite and other rocks, runs south of Peterhead, broken only by the sandy beach of Cruden Bay. The varied coastal vegetation on the ledges and the cliff tops includes maritime heath, grassland and brackish flushes.	Kittiwake (breeding CoSA).	Criterion 1 Criterion 2 Criterion 3
			Herring gull (breeding CoSA).	Criterion 1 Criterion 2 Criterion 3
			Guillemot (breeding CoSA).	Criterion 1 Criterion 2 Criterion 3
			Fulmar (breeding CoSA).	Criterion 1 Criterion 2 Criterion 3
			Shag (breeding CoSA).	Criterion 3
			Seabird assemblage (breeding).	Criterion 1 Criterion 2 Criterion 3
Loch of Strathbeg SPA/ Ramsar	Scotstown: 5.06km Lunderton: 8.08km	Loch of Strathbeg SPA is composed of a shallow	Svalbard barnacle goose (non-breeding).	Criterion 2 Criterion 3

Site name	Approx. distance from Landfall Zone	Site Description	Qualifying features	Criteria for consideration in Screening
	Sandford Bay: 14.28km	freshwater loch with surrounding wetland, dune and grassland communities. It provides wintering habitat for a number of important wetland bird species, particularly wildfowl. 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.	Greylag goose (non-breeding).	Criterion 2 Criterion 3
			Pink-footed goose (non-breeding).	Criterion 2 Criterion 3
			Whooper swan (non-breeding).	Criterion 2 Criterion 3
			Sandwich tern (breeding).	Criterion 2 Criterion 3
			Waterfowl assemblage (non-breeding).	Criterion 2 Criterion 3
			Teal (CoWA).	Criterion 2 Criterion 3
			Goldeneye (CoWA).	Criterion 2 Criterion 3
Ythan Estuary, Sands of Forvie and Meikle Loch SPA	Scotstown: 16.32km Lunderton: 12.70km Sandford Bay: 8.26km	Ythan Estuary, Sands of Forvie and Meikle Loch SPA covers a complex area in the north east of Scotland that contains the long, narrow estuary of the River Ythan, the Sands of Forvie on the east	Pink-footed goose (non-breeding).	Criterion 2 Criterion 3
			Sandwich tern (breeding).	Criterion 2 Criterion 3
			Common tern (breeding).	Criterion 2

Site name	Approx. distance from Landfall Zone	Site Description	Qualifying features	Criteria for consideration in Screening
		bank of the estuary; the eutrophic Meikle Loch and a marine component covering the area between Aberdeen and Cruden Bay to the north.		Criterion 3
			Little tern (breeding).	Not considered further at Sandford Bay due to no connectivity under Criteria.
			Waterbird assemblage (non-breeding).	Criterion 2 Criterion 3 Not considered further at Sandford Bay due to no connectivity under Criteria.
			Eider (CoWA).	Criterion 2 Criterion 3 Not considered further at Sandford Bay due to no connectivity under Criteria.
			Lapwing (CoWA).	Criterion 2 Criterion 3 Not considered further at Sandford Bay due to no connectivity under Criteria.
			Redshank (CoWA).	Criterion 2

Site name	Approx. distance from Landfall Zone	Site Description	Qualifying features	Criteria for consideration in Screening
				Criterion 3 Not considered further at Sandford Bay due to no connectivity under Criteria.
Ythan Estuary and Meikle Loch Ramsar	Lunderton: 19.46km Sandford Bay: 15.76km	Ythan Estuary, Sands of Forvie and Meikle Loch SPA covers a complex area in the north east of Scotland that contains the long, narrow estuary of the River Ythan, the Sands of Forvie on the east bank of the estuary; the eutrophic Meikle Loch and a marine component covering the area between Aberdeen and Cruden Bay to the north.	Pink-footed goose (non-breeding).	Criterion 2 Criterion 3
			Sandwich tern (breeding).	Criterion 2 Criterion 3

Table 4.8 Initial Designated sites screened in for consideration of LSE for onshore ornithology

Site name	Approx. distance from Landfall Zone	Site Description	Qualifying features	Criteria for consideration in Screening
Buchan Ness to Collieston Coast SPA	Scotstown: 8.31km Lunderton: 4.62km Sandford Bay: 95m	Buchan Ness to Collieston Coast SPA is a stretch of south-east facing cliff in Aberdeenshire, Scotland. The 15km stretch of cliffs, formed of granite, quartzite and other rocks, runs south of Peterhead, broken only by the sandy beach of Cruden Bay. The varied coastal vegetation on the ledges and the cliff tops includes maritime heath, grassland and brackish flushes.	Kittiwake (breeding CoSA).	Criterion 2 Criterion 3
			Herring gull (breeding CoSA).	Criterion 2 Criterion 3
			Guillemot (breeding CoSA).	Criterion 2 Criterion 3
			Fulmar (breeding CoSA).	Criterion 2 Criterion 3
			Shag (breeding CoSA).	Criterion 3
			Seabird assemblage (breeding).	Criterion 2 Criterion 3
Loch of Strathbeg SPA/ Ramsar	Scotstown: 5.06km Lunderton: 8.08km Sandford Bay: 14.28km	Loch of Strathbeg SPA is composed of a shallow freshwater loch with surrounding wetland, dune and grassland communities. It provides wintering habitat for a number of important wetland	Svalbard barnacle goose (non-breeding).	Criterion 2 Criterion 3
			Greylag goose (non-breeding).	Criterion 2 Criterion 3
			Pink-footed goose (non-breeding).	Criterion 2 Criterion 3

Site name	Approx. distance from Landfall Zone	Site Description	Qualifying features	Criteria for consideration in Screening
		bird species, particularly wildfowl. 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.	Whooper swan non-breeding).	Criterion 2 Criterion 3
			Sandwich tern (breeding).	Criterion 2 Criterion 3
			Waterfowl assemblage (non-breeding).	Criterion 2 Criterion 3
			Teal (CoWA).	Criterion 2 Criterion 3
			Goldeneye (CoWA).	Criterion 2 Criterion 3
Ythan Estuary, Sands of Forvie and Meikle Loch SPA	Scotstown: 16.32km Lunderton: 12.70km Sandford Bay: 8.26km	Ythan Estuary, Sands of Forvie and Meikle Loch SPA covers a complex area in the north east of Scotland that contains the long, narrow estuary of the River Ythan, the Sands of Forvie on the east bank of the estuary; the eutrophic Meikle Loch and a marine component covering	Pink-footed goose (non-breeding).	Criterion 2 Criterion 3
			Sandwich tern (breeding).	Criterion 2 Criterion 3
			Common tern (breeding).	Criterion 2 Criterion 3
			Little tern (breeding).	Criterion 2 Criterion 3

Site name	Approx. distance from Landfall Zone	Site Description	Qualifying features	Criteria for consideration in Screening
		the area between Aberdeen and Cruden Bay to the north.	Waterbird assemblage (non-breeding).	Criterion 2 Criterion 3
			Eider (CoWA).	Criterion 2 Criterion 3
			Lapwing (CoWA).	Criterion 2 Criterion 3
			Redshank (CoWA).	Criterion 2 Criterion 3
Ythan Estuary and Meikle Loch Ramsar	Lunderton: 19.46km Sandford Bay: 15.76km	Ythan Estuary, Sands of Forvie and Meikle Loch SPA covers a complex area in the north east of Scotland that contains the long, narrow estuary of the River Ythan, the Sands of Forvie on the east bank of the estuary; the eutrophic Meikle Loch and a marine component covering the area between Aberdeen and Cruden Bay to the north.	Pink-footed goose (non-breeding).	Criterion 2 Criterion 3
			Sandwich tern (breeding).	Criterion 2 Criterion 3

5 HRA Screening Step 2: Baseline Conditions

5.1 Receptors and effects excluded from this HRA Screening Report

- 5.1.1.1 Impacts on the Southern Trench Marine Protected Area (MPA), Turbot Bank MPA, and East Caithness MPA will be considered further in the MPA assessment to be submitted with the EIA Report and will not be considered further in this HRA Screening Report.
- 5.1.1.2 The Buchan Ness to Collieston SAC is located 850m south of the Project Boundary. However, the designation relates to Annex I habitats (i.e. vegetated sea cliffs of the Atlantic and Baltic Coasts) as qualifying features above MHWS and no intertidal or subtidal species are included in the feature. Consequently, this HRA Screening Report does not consider effects in the intertidal or subtidal environments in relation to this SAC.
- 5.1.1.3 Any connectivity of diadromous or migratory fish species have back to natal rivers will be considered and assessed through the EIA Report rather than the HRA Screening Report due to uncertainty on where migratory fish (Atlantic salmon, sea trout and sea and river lamprey) go within marine waters and any connectivity back to natal rivers (see **Table 3.1**).
- 5.1.1.4 Transboundary effects will be assessed in the EIA Report, not this HRA Screening Report.

5.2 Annex I habitats baseline

5.2.1 Desk study

- 5.2.1.1 A review of baseline conditions for Buchan Ness to Collieston SAC was undertaken, with reference to the NatureScot's Conservation Advice Package (NatureScot, 2019).
- 5.2.1.2 The qualifying interest feature for the SAC, 'Vegetated sea cliffs of the Atlantic and Baltic coasts', occurs on the sea cliffs and slopes between Buchan Ness and Collieston. The sea-cliffs and slopes support a wide range of maritime habitats including grassland, crevice and ledge communities with characteristic species such as thrift *Armeria maritima*, Scots lovage *Ligusticum scoticum* and roseroot *Sedum rosea*. The clifftop has some of the best examples of heath and brackish flushes on the coast of north-east Scotland.
- 5.2.1.3 A review of baseline conditions for Loch of Strathbeg Ramsar was undertaken, with reference to the JNCC's Information Sheet on Ramsar Wetlands (JNCC, 2008).
- 5.2.1.4 The Loch of Strathbeg Ramsar site comprises a shallow naturally eutrophic loch with adjoining reedbeds, freshwater marshes, and alder and willow carr. The calcareous dunes and dune slacks within this site are relatively undisturbed and contain a rich flora. The diversity of plant communities supports a correspondingly diverse invertebrate fauna.
- 5.2.1.5 The loch constitutes the largest dune slack pool in Britain (200ha) and the largest water body in the north-east Scottish lowlands. It is separated from the sea by a dune system 0.5-1km wide. This site provides wintering habitat for a number of important wetland bird species, particularly wildfowl, and is also an important staging area for migratory wildfowl from Scandinavia, Iceland, and Greenland.

5.2.2 Field survey

- 5.2.2.1 Ecological surveys of the intertidal zone and the offshore export cable corridor have been conducted. Data analysis of these surveys is ongoing so the findings will be reported on to inform the baseline of the RIAA.

5.3 Marine mammals baseline

5.3.1 Introduction

- 5.3.1.1 The following four Annex II marine mammal species have been considered in the LSE screening assessment: bottlenose dolphin, harbour porpoise, grey seal and harbour seal. Although European otter *Lutra lutra* is also listed under Annex II of the Habitat's Directive, no SAC's had the European otter as a qualifying feature, therefore not considered in the assessment.

- 5.3.1.2 This Section summarises the information obtained from the following sources:

- Estimates of cetacean abundance in European Atlantic waters in summer 2022 from the Small Cetaceans in European Atlantic waters and the North Sea (SCANS)-IV aerial and shipboard surveys (Gilles *et al.*, 2023).
- Modelled density surfaces of cetaceans in European Atlantic waters in summer 2016 from the SCANS-III aerial and shipboard surveys (Lacey *et al.*, 2022).
- Revised Phase III data analysis of joint cetacean protocol data resources (Paxton *et al.*, 2016).
- Strandings data from Scottish Marine Animal Stranding Scheme (SMASS; Brownlow *et al.*, 2020).
- Marine Mammal MUs in UK waters (IAMMWG, 2022).
- Conservation and Management Advice (NatureScot, 2021).
- Harbour Porpoise (*Phocoena phocoena*) Special Area of Conservation: Southern North Sea (JNCC, 2019).
- Scientific Advice on Matters Related to the Management of Seal Populations: 2022 (SCOS, 2023).
- Habitat-based predictions of at sea distribution for grey and harbour seals in the British Isles (Carter *et al.*, 2020; 2022).
- Surveys of harbour (common) and grey seals in Orkney, the north coast of Scotland, the Moray Firth and the Firth of Tay in August (Sharples *et al.*, 2012).
- Photo-identification surveys of east coast of Scotland bottlenose dolphin population (Civil *et al.*, 2019).
- East Coast Marine Mammal Acoustic Study (ECOMMAS) (<https://marine.gov.scot/information/east-coast-marine-mammal-acoustic-study-ecommas>).
- Moray Firth Regional Advisory Group (MFRAG) meeting notes and marine mammal monitoring (<https://marine.gov.scot/ml/moray-firth-regional-advisory-group-mfrag>).

- Forth and Tay Regional Advisory Group (FTRAG) meeting notes and marine mammal monitoring (<https://marine.gov.scot/ml/forth-tay-regional-advisory-group-ftfrag>).
- Protected site citations (<https://mapper.mpa.jncc.gov.uk/>).
- The Habitats Directive: selection of Special Areas of Conservation in the UK (JNCC, 2009).

5.3.2 Desk study

- 5.3.2.1 A baseline review of the current environment and population trends were submitted within the Project's Scoping Report (MarramWind Limited, 2023). Since submission of the Scoping Report, the results of an updated large-scale survey for cetaceans (SCANS-IV; Gilles *et al.*, 2023) was published and those data and the associated outputs are drawn upon here. Marine mammal density values for the four Annex II marine mammal species identified in the Scoping Report are presented within the relevant species sections below.

Bottlenose dolphin

- 5.3.2.2 Two different ecotypes of bottlenose dolphin occur commonly across Irish and UK waters: coastal ecotype and offshore ecotype (Wall *et al.*, 2013; Hague *et al.*, 2020). The coastal ecotype makes up year-round resident populations in the Shannon Estuary in the Republic of Ireland (Rogan *et al.*, 2018), Cardigan Bay in Wales, and the Moray Firth in east Scotland (Santos *et al.*, 2001; Hague *et al.*, 2020). Female bottlenose dolphins reach sexual maturity from 6-13 years old (Robinson *et al.*, 2017) and males from their tenth year (Harrison and Ridgwa, 1971). Peak season for births is observed between May and November (Berrow *et al.*, 2010). The gestation period lasts for 12 months and females average calving intervals are around three to five years (Harrison and Ridgwa, 1971; Robinson *et al.*, 2017).
- 5.3.2.3 The Moray Firth SAC has an estimated number of 224 individuals (Arso Civil *et al.*, 2021; IAMMWG 2022). The SAC extends from Helmsdale in the north, to Lossiemouth in the south. More than 50% of the east-coast population of bottlenose dolphin utilise the area within the SAC, with some individuals travelling further out into the Moray Firth, Pentland Firth, Tay and Forth Estuary, Ireland and Denmark. However, the population mostly maintains a coastal distribution (Cheney *et al.*, 2013; Civil *et al.*, 2019).
- 5.3.2.4 Bottlenose dolphin was recorded in Blocks R and S of the SCANS III surveys, but no bottlenose dolphin were sighted within the relevant blocks of the SCANS-IV surveys (**Table 5.1 Bo**). No bottlenose dolphin were identified during the monthly Project specific DASs (undertaken between April 2021 and March 2023) within the Project Boundary and the 4km buffer. This population of bottlenose dolphin is known to prefer near-shore waters (especially in areas less than 20 m water depth) and are predominantly sighted within 3km of the coast within the Coastal East Scotland MU (NatureScot, 2021). This coastal preference may explain why count estimates were low during the latest SCANS surveys, as these surveys are more focused on offshore areas.

Table 5.1 Bottlenose dolphin abundance estimates in Study Area

Source	SCANS block	Abundance estimate
Gilles <i>et al.</i> , 2023	CS-K	_ ^{**}
	NS-E	-
	NS-D	-
Hammond <i>et al.</i> , 2021	R	1,924 (95% CI=0-5,048).
	S	151 (95% CI=0-527).
	T	-
IAMMWG, 2022	N/A	Coastal East Scotland MU*:224 (95% CI=214-234). Greater North Sea MU: 2,022 (95% CI=548-7,453).

*MU = Management Unit including the confidence interval (CI) and coefficient of variance (CV). Sources: IAMMWG, 2022; Hammond *et al.*, 2021.

**Where a '-' is shown, this indicates there are no records of the species in the block.

Harbour porpoise

- 5.3.2.5 Harbour porpoise is the most abundant cetacean species in UK waters (Weir *et al.*, 2001; Hammond *et al.*, 2002). This is reflected in the estimates for the relevant SCANS block (**Table 5.2**). Harbour porpoise densities within the Project site increase over summer and autumn months compared with winter months, but the Project is not located within an area identified as a persistent area of relatively high harbour porpoise density (Heinänen and Skov, 2015). The Project-specific DAS (undertaken between April 2021 and March 2023) recorded harbour porpoise across 21 of the 24 surveys. They were most abundant between June to August and least abundant between October and January.
- 5.3.2.6 Their reproductive cycle includes giving birth to one calf every year between May and August (with peaks in June and July), and mating between April and September, with a gestation period of 10-11 months (Blanchet *et al.*, 2008).

Table 5.2 Harbour porpoise abundance estimates in Study Area

Source	SCANS block	Abundance estimate
Gilles <i>et al.</i> , 2023	CS-K	11,357 (95% CI = 4,946-21,173)
	NS-E	33,735 (95% CI = 21,757-50,324)
	NS-D	38,577 (95% CI = 18,017-76,361)
Hammond <i>et al.</i> , 2021	R	38,646 (95% CI = 20,584-66,524)
	S	6,147 (95% CI = 3,401-10,065)
	T	26,309 (95% CI = 14,219-45,280)
IAMMWG, 2022	N/A	North Sea MU*: 346,601 (95% CI = 289,498 – 419,967)

*MU = Management Unit including the confidence interval (CI) and coefficient of variance (CV). Sources: IAMMWG, 2022; Hammond *et al.*, 2021.

Grey seal

- 5.3.2.7 Grey seals inhabit coastal waters throughout the north Atlantic Ocean (SCOS, 2022). Individuals are known to travel into neighbouring regions, including Irish and French waters (Vincent *et al.*, 2002; Matthiopoulos *et al.*, 2004; Cronin, 2011). Although grey seals often show site fidelity for breeding haul-out sites (up to 50% of studied known individuals), only 35% of foraging trips begin and end at the same haul-out site (Carter *et al.*, 2022). During the moulting, breeding and pupping season (a period of high sensitivity for the species) their travel is typically limited between 20–50km of their chosen breeding haul-out in this region (Carter *et al.*, 2022).
- 5.3.2.8 Grey seals in north Scotland haul-out in remote coastal areas to breed between September and late November, and during the moult from December to April. Population estimates for grey seals primarily occur during the breeding season through pup production estimates. However, adult counts are also conducted during official harbour seal counts in August. **Table 5.3** presents both pup production estimates and adult counts during the most recent surveys. Grey seal pup production within this region has remained stable since around (anno) 2000 and is believed to have reached carrying capacity (SCOS, 2023).
- 5.3.2.9 During the Project-specific DAS (undertaken between April 2021 and March 2023), grey seals were recorded across five surveys during summer, autumn and winter.

Table 5.3 Count data of grey seals within relevant Seal management areas (SMAs) and Special Areas of Conservation (SACs). Sources: Morris *et al.*, 2021; SCOS, 2021; 2023

Seal management area (SMA) counts	Special Area of Conservation (SAC) counts
North Coast and Orkney: 8,599 (2019 August Count). 22,153 estimated pup production (2019).	Faray and Holm of Faray SAC: 228 (2019 August count). 2,186 estimated pup production (2019).
Moray Firth: 1,082 (2021 August count between Loch Fleet and Findhorn). 1,865 estimated pup production.	—*
East Scotland: 2,707 (2021 August count). 7,261 estimated pup production.	Isle of May SAC: 40 (2016 August count), 97 (2021 August count). 1,885 estimated pup production. Firth of Tay and Eden Estuary SAC**: 686 (2019). Berwickshire and North Northumberland Coast SAC (within Scotland): 71 (2018 August count), 0 (2021 August count). 4,499 estimated pup production.

* Where a '—' is shown, this indicates there are no records of the species in the block.

**A count is presented but it should be noted that grey seal is not a protected feature of this SAC.

Harbour seal

- 5.3.2.10 Harbour seal is typically found in coastal waters but individuals can move further offshore to forage (Teilmann and Galatius, 2018; Carter *et al.*, 2022). Although telemetry studies have recorded harbour seals traveling up to 200km between haul-out sites (Sharples *et al.*, 2012; SCOS, 2020; 2022), individuals generally make shorter foraging trips than grey seals, averaging a distance range of 50-80 km from their main haul-out site (SCOS, 2017; 2022). These distances reduce further to between 40–50km of their main haul-out site during the breeding and pupping season (Carter *et al.*, 2022).
- 5.3.2.11 Harbour seals are particularly vulnerable to disturbance during the breeding season in June and July, and moulting season in August and September (Paterson *et al.*, 2015). Harbour seal population estimates are conducted through counts of individuals hauled-out during the moulting season. The latest harbour seal population estimate is derived from count survey carried out over the 2016-2021 census period, which estimated a total of 36,600 harbour seals in Scotland (SCOS, 2023). **Table 5.4** provides the population estimates for the relevant SMAs.
- 5.3.2.12 No harbour seals were identified during the Project-specific DAS (undertaken between April 2021 and March 2023).

Table 5.4 Count data of harbour seals within relevant Seal management areas (SMAs) and Special Areas of Conservation (SACs). Sources: Morris *et al.*, 2021; SCOS, 2021; 2023

Seal management area (SMA) counts	Special Area of Conservation (SAC) counts
North Coast and Orkney: 1,951 (1,596-2,601 individuals counted between 2016-2021).	Sanday SAC: 77 (2019).
Moray Firth: 958 (784-1,277 individuals counted between 2016-2021).	Dornoch Firth and Morrich More SAC: 62 (2019) 69 (2021).
East Scotland: 364 (298-485 individuals counted between 2016-2021).	Firth of Tay and Eden Estuary SAC: 41 (2019) 41 (2021).

5.3.3 Field survey

- 5.3.3.1 The Project conducted 24 DAS of the Project OAA plus a 4km buffer between April 2021 and March 2023. Through consultation with NatureScot and MD-LOT, it was highlighted that this 4km buffer may not be sufficient to fully characterise marine mammal density and abundance. It was suggested that the DAS may need to be supplemented by passive acoustic monitoring (PAM). The use of PAM has not yet been fully discussed with stakeholders, but a 'before after control impact; (BACI) approach has been suggested.
- 5.3.3.2 Based on the DAS results, the following Annex II species were identified:
- harbour porpoise; and
 - grey seal.
- 5.3.3.3 It is also noted that some sightings were not identified to species level but rather recorded more generally under 'dolphin species', 'seal species' and 'marine mammal'.

5.4 Ornithological features baseline

5.4.1 Overview

- 5.4.1.1 This Section briefly describes the offshore and intertidal baseline for ornithology receptors, the full details of which will be provided within Offshore and Intertidal Ornithology Baseline Characterisation Report that will accompany the Offshore Ornithology EIA Chapter. In this Section, there is a separation between the offshore, intertidal and onshore ornithology baseline.
- 5.4.1.2 The North Sea is known to be an important area for birds, during migratory passage periods and in winter months when UK breeding birds are joined by birds that have migrated from continental Europe and Fennoscandia. There is mix of bird populations present at different times including those overwintering in the area, those foraging from nearby breeding coastal

colonies and those on post-breeding dispersal, migration and pre-breeding return. As well as true pelagic seabirds (e.g. gannet, fulmars and auks), other species that spend part of their annual life cycle at sea (e.g. divers, gulls and seaducks) are also present in particular months, with periodic numbers of non-seabird migrants passing through the area (e.g. wildfowl, waders and passerines). The main sources of information on offshore ornithology receptors drawn on for this screening stage, and that will be drawn on further during Stage 2 of the HRA Process described in **Section 3.3** are described within **Section 5.4.2**.

5.4.2 Offshore ornithology site-specific surveys

- 5.4.2.1 The primary data source for offshore ornithology baseline characterisation is the Project-specific DAS that was completed for the Project OAA and a surrounding 4km buffer. As previously noted, a programme of 24 DAS took place between April 2021 and March 2023, as recommended for baseline characterisation within NatureScot's Guidance Note 2 (2023d). A summary of the presence of seabirds recorded per season (based on the recommended seasonal definitions in NatureScot Guidance Note 9 (2023b) within the site-specific surveys is provided in **Table 5.5**.

Table 5.5 Summary of seabird species recorded within the 24 months of site-specific surveys

Species	Recorded within OAA during the breeding season	Recorded within OAA during the non-breeding season	Recorded within OAA plus 4 km buffer during the breeding season	Recorded within OAA plus 4 km during the non-breeding season
Red-throated diver	X	X	✓	X
Storm petrel	✓	X	✓	X
Fulmar	✓	✓	✓	✓
Manx shearwater	✓	X	✓	X
Gannet	✓	✓	✓	✓
Great skua	✓	X	✓	X
Arctic skua	X	X	✓	✓
Kittiwake	✓	✓	✓	✓
Common gull	✓	X	✓	X
Herring gull	✓	✓	✓	✓
Lesser black-backed gull	X	X	✓	✓
Great black-backed gull	✓	✓	✓	✓

Species	Recorded within OAA during the breeding season	Recorded within OAA during the non-breeding season	Recorded within OAA plus 4 km buffer during the breeding season	Recorded within OAA plus 4 km during the non-breeding season
Arctic tern	✓	X	✓	X
Razorbill	✓	✓	✓	✓
Guillemot	✓	✓	✓	✓
Puffin	✓	✓	✓	✓
Little auk	X	✓	X	✓

5.4.3 Offshore ornithology desk study

- 5.4.3.1 The key data sources identified for the Project to inform the offshore ornithology baseline are presented in **Table 5.6**. These data sources include information on UK seabird population estimates, seabird foraging ranges, distribution at sea and relevant guidance on assessments.

Table 5.6 Key sources of offshore ornithology data and guidance

Source	Summary
NatureScot Guidance Notes to support Offshore Wind Applications: Marine Ornithology (NatureScot, 2023a-k).	A total of 11 guidance notes presenting NatureScot's recommended approaches to assessment of seabirds to inform EIA and HRA for Offshore Wind Applications. This information has been utilised to inform the overall approach taken to HRA Screening.
Wade <i>et al.</i>, 2016; Furness <i>et al.</i>, 2013; Furness and Wade 2012; Langston 2010; Stienen <i>et al.</i>, 2007; Drewitt and Langston 2006; Garthe and Hüppop 2004; Dierschke <i>et al.</i>, 2016; Masden <i>et al.</i>, 2012, 2010; Speakman <i>et al.</i>, 2009.	Guidance and research primarily focused on defining the sensitivity of seabirds focused on potential impact pathways from offshore wind farms. These data sources have been used to inform the level of potential effect an impact pathway may pose on any individual qualifying features of a designated site with potential connectivity.
Statutory Nature Conservation Bodies (SNCBs) 2022.	Joint SNCB advice note detailing information on seabird species considered to be sensitive to distributional responses (disturbance, displacement and barrier effects), and recommendations on overall approach to assessment of such effects. This data source has been utilised to inform potential LSE on species with respect to distributional responses.
Bowgen and Cook 2018; MacGregor <i>et al.</i>, 2018; Skov <i>et al.</i>, 2018; Cook <i>et al.</i>, 2014; Johnston <i>et al.</i>, 2014; SNCBs 2014; Band 2012; Wright <i>et al.</i>, 2012; Ozsanlav-Harris <i>et al.</i>, 2023; Cook <i>et al.</i>, 2012. It is noted that a recent review and recommendations for revised avoidance rates (Cook 2021), commissioned by Natural England, has been withdrawn.	Guidance, research and methodology – collision risk modelling, flight heights and avoidance rates for birds and offshore wind farms, including the Band deterministic model, the stochastic model and the migratory species model. These data sources have been utilised to inform potential LSE on species with respect to collision risk.
Cleasby <i>et al.</i>, 2020, 2018; Waggitt <i>et al.</i>, 2019; Woodward <i>et al.</i>, 2019; Wakefield <i>et al.</i>, 2017, 2013; Kober <i>et al.</i>, 2010; Stone <i>et al.</i>,	Data sources related to seabird foraging ranges and distribution at sea. These data sources have been used to inform potential

Source	Summary
1995, specific tracking studies for Scotland seabird breeding colonies e.g. MacArthur Green (2018, 2019), Waggitt <i>et al.</i>, 2020.	connectivity between qualifying features of designated sites and the Project.
Furness 2015; Mitchell <i>et al.</i>, 2004; JNCC seabird monitoring programme database; Designated site citations / departmental briefs / conservation advice from the websites of SNCBs.	Data sources informing seabird population estimates for both individual colonies and the wider UK North Sea populations. These data sources have been used to inform potential connectivity with designated sites, especially during the non-breeding season.
Relevant documents from marine licence applications for other offshore wind farms in UK offshore waters (in particular Scottish and English East Coast Waters), and Transboundary offshore wind farms.	Information and data for cumulative and in-combination (HRA) assessment. These data sources are utilised to understand any precedent set which may need to be considered and to inform the potential for LSE based on conclusions drawn for other offshore wind farm developments.
Relevant ecological studies for species included (peer reviewed scientific papers and 'grey' literature), including postconstruction monitoring studies (e.g. Moray Firth Regional Advisory Group https://marine.gov.scot/ml/moray-firthregional-advisory-group-mfrag), Kincardine offshore wind farm bird collision study (KOWL, 2019), ORJIP collision avoidance study (SKOV <i>et al.</i>, 2018), East Coast of Scotland regional DASs (APEM 2021) and subsequent upcoming modelling report (MSS, date TBC).	Empirical evidence and post-consent monitoring studies providing context to the potential effects an offshore wind farm development may pose. These data sources have been utilised to inform decisions with respect to LSE.
The British Trust for Ornithology (BTO) Bird Atlas (Balmer <i>et al.</i>, 2013), Birds of Scotland (Forrester <i>et al.</i>, 2007), the Aberdeenshire County Bird Report (Scottish Ornithologists' Club (SOC), multiple years), The Breeding Birds of North-East Scotland (Francis <i>et al.</i>, 2011), and any other relevant publications identified.	Bird records and ecology to inform on abundance and distribution of species. This information has been used to support the findings of the DAS species recorded and subsequent expected abundance, alongside greater inform potential baseline characterisation for more cryptic species which may be difficult to appropriately characterise solely using DAS.

5.4.4 Intertidal ornithology desk study

- 5.4.4.1 A detailed intertidal ornithology desk study has been undertaken for the Project, the details of which are presented within the MarramWind Intertidal Bird Surveys: Desk Study (APEM Ltd., 2023b). A summary of the key data sources utilised within the report to inform the intertidal ornithology baseline are presented in **Table 5.7**.

Table 5.7 Key sources of intertidal ornithology data

Source	Summary
North-East Scotland Biological Records Centre (NESBReC)	Locations, population trends, counts and distributions of species within North-East Scotland; data collection 2012-2023.
BTO Wetland Bird Survey (WeBS)	Specific locations, population trends, counts and distributions of waterbirds at UK wetland sites; data collection 2015-2020.
Public Access WeBS	Population trends, counts and distributions of waterbirds at UK wetland sites; data collection 2015-2020.
BTO Non-estuarine Waterbird Survey (NEWS)	Population estimates and broad scale distributions of waterbirds and some seabird species in intertidal, landward, and seaward habitats on the non-estuarine coastline of the UK; data collection 1997/98, 2006/07, 2015/16, 2019/20.
SOC	Specific locations, population trends, counts and distributions of bird species around Scotland; data coverage 2013-2021.
BTO Bird Atlas	Distribution of species in the UK at 10 x 10 km grid squares; data collected 2007-2011.

5.4.5 Intertidal ornithology site specific surveys

- 5.4.5.1 The primary data source for intertidal ornithology baseline characterisation is the site-specific intertidal and nearshore bird surveys completed for the three Landfall Zones (Landfall Zone – Scotstown; Landfall Zone – Lunderton; and Landfall Zone – Sandford Bay). A programme of 12 monthly intertidal surveys took place between September 2022 and August 2023. A summary of the presence of intertidal and nearshore bird species recorded in important numbers (i.e., >1% of an SPA population with potential connectivity) recorded at each Landfall Zone is provided in **Table 5.8**. Further details on the results of the intertidal ornithology surveys are presented in the associated MarramWind Intertidal Bird Surveys – Final Report September 2022 to August 2023 (APEM Ltd., 2023a).

Table 5.8 Summary of intertidal and nearshore bird species of conservation concern recorded in **important numbers** at Landfall Zone Scotstown Head; Lunderton; and Sandford Bay) within the 12 months of intertidal surveys.

Landfall Zone	Scotstown		Lunderton		Sandford Bay	
Species	Total number of records*	Peak count (month)*	Total number of records*	Peak count (month)*	Total number of records*	Peak count (month)*
Eider	49	120 (Aug 23)	51	100 (Jan 23)**	114	78 (Mar 23)
Redshank	14	35 (Dec 22)	21	36 (Jan 23)	49	102 (Mar 23)
Herring gull	96	260 (Early May 23)	34	83 (Late May 23)	248	351 (Mar 23)
Sandwich tern	42	70 (Jun 23)	8	45 (Early May 23)	17	26 (Early May 23)
Guillemot	52	230 (Aug 23)	27	162 (Aug 23)	53	35 (Aug 23)
Shag	228	820 (Aug 23)	59	295 (Jun 23)	103	112 (Early May 23)

*Full survey results are presented within the MarramWind Intertidal Surveys – Final Report September 2022 to August 2023 (APEM Ltd., 2023a).

** Bold peak count month represent important numbers.

5.4.6 Onshore ornithology desk study

- 5.4.6.1 The primary data sources for onshore ornithology baseline characterisation comprised the following contextual material, including historical winter geese and swan surveys in Aberdeenshire and available geese and swan records for the Study Area (covered by the winter geese and swan surveys) from the BTO and the SOC. A summary of key sources of onshore ornithological data is provided in **Table 5.9**.

Table 5.9 Key sources of onshore ornithology data

Source	Summary
Patterson (2015)	The study assessed goose flight height and activity at sites across Scotland. Within north-east Aberdeenshire, goose flight activity was generally highest within 10km of the pink-footed goose roost at the Loch of Strathbeg SPA. Relatively high levels were also recorded 10-20km from the SPA, and within 20km of the goose roost at Meikle Loch. In general, goose flight activity declined with distance from the nearest roost SPA. However, high levels of flight activity (over 20 geese per km² per hour observed) were still noted over a hotspot near Strichen, at the edge of the goose survey Study Area.
Littlewood & Sideris (2016)	Throughout the survey programme in Spring 2016, pink-footed goose flocks made heavy use of the area south-east of the Loch of Strathbeg, towards the St Fergus gas terminal. Areas south of the terminal, northwest of the Loch of Strathbeg, at Crimond and west of Fraserburgh also supported concentrations of sizeable flocks during at least one visit.
BTO Data	Summary of BTO Geese and Swan records (2016-2020) Loch of Strathbeg: • peak count of 17,252 pink-footed goose; • peak count of 1,167 whooper swan; • peak count of 899 barnacle goose; and • peak count of 224 greylag goose. Ugie Estuary: • peak count of 1 pink-footed goose; • no whooper swan recorded; • peak count of 899 barnacle goose; and • no greylag goose recorded.
SOC Data	Summary of SOC Goose and Swan Records 2012-2021 (recorded within the goose survey Study Area) • peak count of 65,000 pink-footed goose; • peak count of 1,167 whooper swan; • peak count of 300 barnacle goose; and • peak count of 675 greylag goose.

5.4.7 Onshore ornithology – winter geese and swans (distribution and flight activity) surveys

5.4.7.1 The primary data source for onshore ornithology baseline was the programme of winter geese and swan surveys undertaken over the 2022/23 winter season. The Study Area (see Error! Reference source not found.) was designed to encompass:

- All likely areas where significant numbers of geese and swans that roost at Loch of Strathbeg may feed.
- Likely goose feeding areas within the south of the Study Area potentially associated with the Ythan Estuary, Sands of Forvie and Meikle Loch SPA.

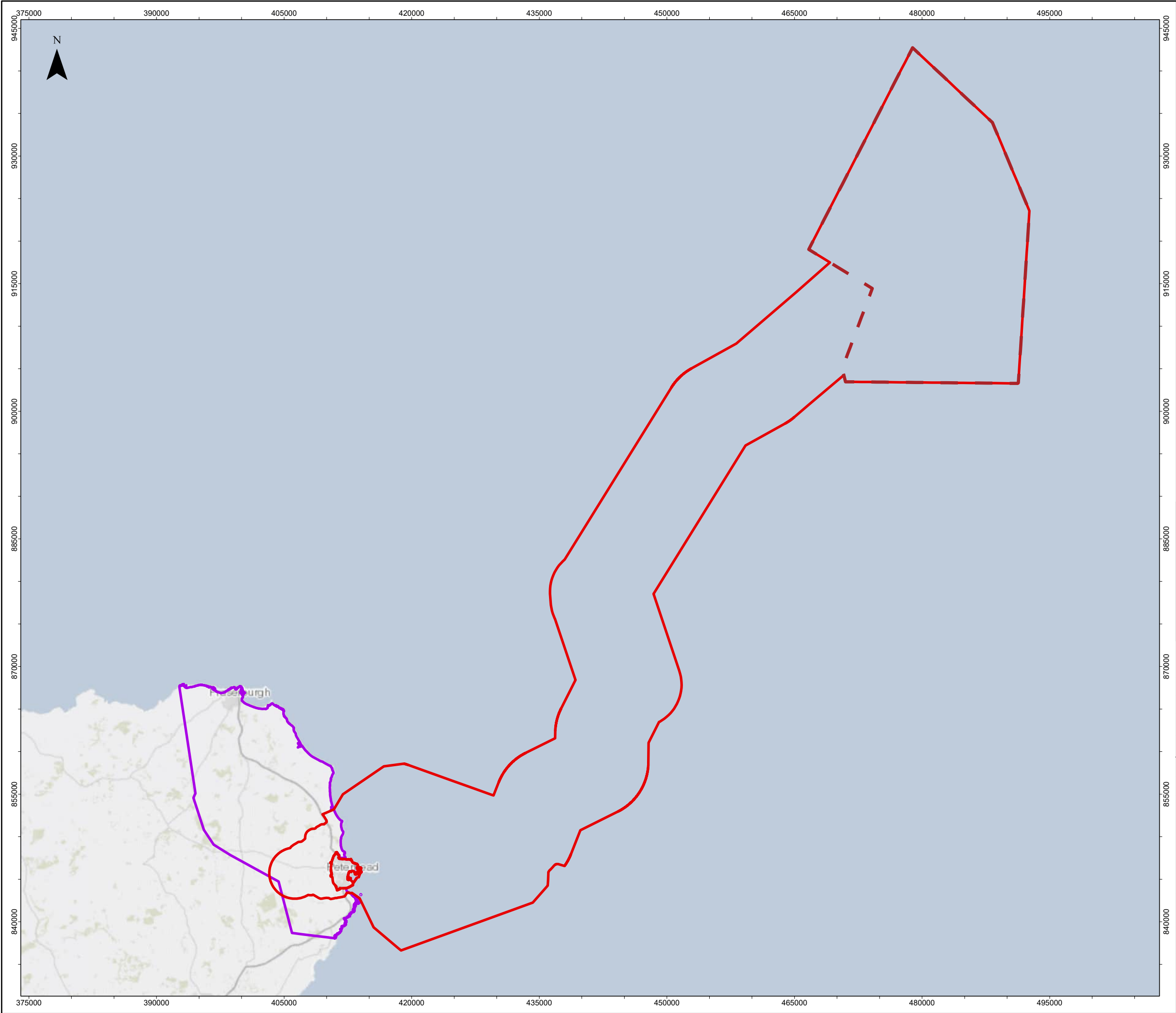
5.4.8 Onshore ornithology baseline results summary

5.4.8.1 The 2022/23 distribution surveys recorded a total of 12,949 geese of five species. Goose abundance peaked in March with a peak count of 3,341 birds, almost all of which were pink-footed goose.

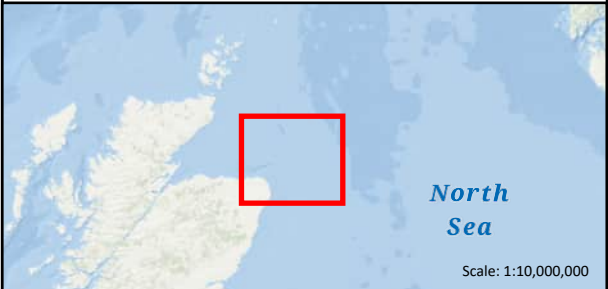
5.4.8.2 Throughout the surveys, geese/swan flocks made heavy use of the area within 3km of the Loch of Strathbeg. This was most pronounced between December and February. From September to November, birds were more widely distributed, with an additional cluster southwest of Fraserburgh. In March, bird groupings were evident around St Fergus, Rora and Kininmonth. However, in April 2023, birds were again clustered more tightly around the Loch of Strathbeg.

5.4.8.3 A goose hotspot south of the St Fergus gas terminal noted by Littlewood & Sideris was recorded throughout winter 2022/23 until late March. Between 297 and 700 pink-footed goose were recorded in this area during each of November, January, February and March. Areas at Crimond, west of Fraserburgh, northwest of the Loch of Strathbeg, and at Memsie and Kininmonth also supported a concentration of sizeable flocks during at least one visit.

5.4.8.4 Further details on the results of the winter geese and swans surveys are presented in the associated MarramWind Winter Goose and Swans Surveys Baseline Report (WSP UK Ltd., 2024). A second winter season (2023/24) is currently underway, and additional data will support the RIAA as required.



-  Project Boundary
-  NE7 Option Agreement Area
-  Wintering Geese Survey Study Area



	ddmm/yyyy	--	--	--	--
2	24/05/2024	LT	AMc	MR	LG
1	04/12/2023	LT	AMc	MR	LG
REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER

WSP DRAWING NUMBER 808368-WEIS-IA-SC-FG-H3-78238

MarramWind DRAWING NUMBER MAR-GEN-CNS-MAP-WSP-000006

DATUM ETRS 89 PROJECTION UTM Zone 30N

SCALE 1:425,000 PAGE SIZE A3

PROJECT TITLE MarramWind Offshore Wind Farm

DRAWING TITLE
Figure 5.1 Wintering geese and swans survey study area

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Service Layer Credits: OS Open Background: Contains OS data © Crown Copyright and database right 2020
World Ocean Reference: Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS
World Ocean Base: Esri, GEBCO, Garmin, NaturalVue

NOT TO BE USED FOR NAVIGATION



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A joint venture between ScottishPower and Shell UK

6 Screening Step 3 Identification of Impact Pathways

6.1 Potential impact pathways

6.1.1 Overview

6.1.1.1 Following the Designated site selection process detailed in **Section 4.1**, the next step in the screening process is to identify any potential impact pathways for the Project during construction, O&M and decommissioning phases based on the Project Description in **Chapter 2**, which have the potential to result in a LSE on the qualifying features of Designated sites included for consideration under Step 1 (**Chapter 4**).

6.1.1.2 The main mechanisms by which the Project could affect Designated sites are through either direct or indirect impact pathways, which are considered individually for each receptor group and summarised in **Table 6.1**.

6.1.2 Zone of influence

6.1.2.1 The spatial scope of any HRA should be based on the likely environmental outcomes of the scheme, its ZOI and the interest features of the Designated sites that may be affected and their potential vulnerabilities. Many Designated site qualifying features (particularly animal species) may use or be reliant on non-designated habitats outside of a Designated site during their life cycle. Developments distant from a Designated site can therefore have an effect if its interest features are reliant on the habitats being affected by the development.

6.1.2.2 Receptor specific potential impact pathways and ZOI are provided in **Table 6.1**, including rationale for ZOI effect range and phases of the Project whereby the potential impact may occur.

6.1.2.3 Potential effects during construction, O&M, and decommissioning considered in the HRA process and screened into the HRA are listed in **Table 6.1**.

Table 6.1 Potential impacts identified for the Project for each receptor group and the ZOI effect range

Receptor group	Potential impact	ZOI effect range	Justification for ZOI effect range and conclusion for screening in for LSE consideration	Project phase potential impact may occur		
				Construction / installation	O&M	Decommissioning
Annex I habitats	Permanent habitat loss.	The ECC landfall and substation footprint.	The ZOI for potential impacts on terrestrial Annex I habitats, i.e. focused on habitat loss as a result of the Project has been taken to be the immediate footprint of the Project. There is no overlap or potential for permanent habitat loss given the distance between the Loch of Strathbeg Ramsar (4.1km) and Buchan Ness to Collieston SAC (850m), with no potential for LSE.	X	X	X
	Physical disturbance and temporary loss of habitat.	The ECC, landfall and substation and surrounding 250m buffer.	The ZOI for potential impacts on terrestrial Annex I habitats, i.e. focused on direct physical disturbance and temporary loss of habitat as a result of the Project, has been taken to be the immediate footprint of the Project and a precautionary buffer of 250m. There is no likelihood for physical disturbance and/or temporary loss of habitat given the distance between the Project and either the Loch of Strathbeg Ramsar or Buchan Ness to Collieston SAC or the qualifying habitat features.	X	X	X
	Physical disturbance and long-term loss of habitat.	The ECC, landfall and substation and surrounding 250m buffer.	The ZOI for potential impacts on terrestrial Annex I habitats, i.e. focused on direct physical disturbance, degradation and permanent loss of habitat, as a result of the Project has been taken to be the immediate footprint of the Project, and a precautionary buffer of 250m. There is no likelihood for physical disturbance and/or permanent loss of habitat given the distance between the Project and either the Loch of Strathbeg Ramsar or Buchan Ness to Collieston SAC or the qualifying habitat features.	X	X	X
	Accidental pollution.	Hydrological connectivity with the ECC, landfall and substation.	Within the terrestrial environment there is no hydrological connectivity between the Project and either the Loch of Strathbeg Ramsar or Buchan Ness to Collieston SAC. Within the marine environment, the introduction of chemical pollution is likely to be short-lived and localised and with the correct control measures adopted throughout the life cycle of the Project, the risk is further managed and likely to have negligible to no LSE.	X	X	X
Annex II marine mammals	Underwater noise including barrier effects, disturbance or injury (during construction/installation (e.g. increased vessel disturbance, piling, pre-construction surveys, UXO clearance, seabed preparations, cable installation, rock dumping), O&M (e.g. increased vessel disturbance, operational noise from wind turbines, mooring line movements) and decommissioning (e.g. increased vessel disturbance, infrastructure removal).	Project OAA plus consideration of impact ranges estimated within underwater noise modelling report (not yet available).	Effect ranges are dependent on activity, mitigation measures and species in question. Extent of effect requires Project specific underwater noise modelling to determine ZOIs for specific activities. For example, JNCC (2020) advise effective deterrent ranges (EDRs) of 26km for large diameter monopiles, 15km for pin-piling, 26km for high order UXO clearance and 5km for geophysical surveys using equipment such as sub-bottom profilers and multi-beam echosounders. These fixed EDRs are advised as radii of effect for harbour porpoise which are considered a conservative proxy for other cetaceans due to their high sensitivity to sound. Potential impact included for consideration of LSE as effects can include masking of communication and echolocation signals, avoidance response and temporary habitat loss,	✓	✓	✓

Receptor group	Potential impact	ZOI effect range	Justification for ZOI effect range and conclusion for screening in for LSE consideration	Project phase potential impact may occur		
				Construction / installation	O&M	Decommissioning
			and temporary or permanent threshold shifts (TTS or PTS) in hearing. Where Designated sites have been screened out, it is considered that the underwater noise effects associated with the Project will not impact individuals within the site and/or have connectivity between individuals associated with Designated site(s) is considered unlikely based on current knowledge of the ecology and behaviour of the species.			
	Disturbance from electromagnetic fields (EMF) from cables.	The ECC.	Cables emit EMF, with the highest forces associated with high-voltage export cables. Based on the data available, there is no evidence of EMF from array or export cables having any effect (either positive or negative) on marine mammals (Copping, 2018; Normandeau <i>et al.</i> , 2011). Potential impacts are further reduced by cable burial in accordance with DECC Guidelines (2011). Therefore, risk is further managed and likely to have negligible to no LSE.	X	X	X
	Collision risk with vessels.	Project OAA, ECC and vessel transit routes to port.	Although any collision event would be sustained within close proximity to vessels associated with the Project, marine mammals are highly mobile, which may affect individuals that use a protected habitat (i.e. connectivity). Potential impact included for consideration of LSE as effects can include physical injury and death.	✓	✓	✓
	Entanglement with mooring lines and/or secondary entanglement (e.g. 'ghost' fishing gear).	The mooring lines associated with the WTGs within the Project OAA.	The mooring lines for the WTG have the potential to snag 'ghost' fishing gear which marine mammals could potentially become entangled within. If the mooring lines are slack, the risk of direct entanglement of marine mammals increases. Potential impact included for consideration of LSE as effects can include physical injury and death.	X	✓	X
	Barrier effects due to the physical presence of offshore infrastructure.	The Project OAA.	The presence of the WTGs has the potential to cause a physical barrier to marine mammals which may forage beyond the Project OAA, resulting in additional energy expenditure to navigate around the array area. Potential for LSE identified for the operational and maintenance phase only.	X	✓	X
	Changes in water quality.	The Project OAA.	The introduction of chemical pollution is likely to be short-lived and localised and with the correct control measures adopted throughout the life cycle of the Project, the risk is further managed and likely to have negligible to no LSE.	X	X	X
	Changes to prey availability.	Project OAA plus consideration of relevant species MU.	The Project may displace prey species which could negatively affect foraging efficiency of marine mammals. Potential impact included for consideration of LSE during all phases of development.	✓	✓	✓

Receptor group	Potential impact	ZOI effect range	Justification for ZOI effect range and conclusion for screening in for LSE consideration	Project phase potential impact may occur		
				Construction / installation	O&M	Decommissioning
Offshore, Intertidal and Onshore Ornithological features	Habitat loss (ECC).	The offshore ECC.	The presence of machinery associated with cable laying of the ECC and subsequent removal during the decommissioning phase within nearshore environment has the potential to cause temporary habitat loss should the open trench method be utilised. The presence of installed cables on the sea floor however can be considered inconsequential when taking into account the extensive foraging habitat available elsewhere.	✓	X	✓
	Direct temporary habitat loss (ECC).	The intertidal ECC.	The presence of machinery associated with cable laying of the ECC within intertidal has the potential to cause temporary habitat loss should the open trench method be utilised.	✓	X	✓
	Habitat loss (OAA).	The Project OAA.	During the construction and decommissioning phases, habitat loss would be incurred in the array area at locations where vessels are installing WTG securing points and connection. Habitat loss is would be temporary and short-lived, and negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the array site. LSE can be ruled out. During the operational phase of the Project, habitat loss / change in the array area may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would likely be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the array site, though considered further on a precautionary basis.	✓	✓	✓
	Distributional response including disturbance and displacement (ECC).	The offshore ECC and surrounding 2km buffer.	Behavioural and population changes resulting from disturbance caused by sources of noise and / or vibration (air or ground borne) and/or visual disturbances, such as the presence of structures, or lighting. The ZOI effect ranges are applied with reference to advice from SNCBs (SNCBs, 2022) based on the ornithology receptors identified in Section 5.4 . Furthermore, species such as divers have been noted to avoid shipping, with one study identifying red-throated diver flushing at a median value of 400m and a maximum value of 2km (Bellebaum <i>et al.</i> , 2006).	✓	X	✓
	Direct temporary disturbance and displacement (ECC).	The intertidal ECC and surrounding 0.5km buffer.	Behavioural and population changes resulting from disturbance caused by sources of noise and / or vibration (air or ground borne) and/or visual disturbances, such as the presence of vehicles, machinery or lighting. The ZOI effect ranges are applied with reference to data presented by Cutts <i>et al.</i> (2013) when considering the limited spatial and temporal nature of the proposed works.	✓	X	✓

Receptor group	Potential impact	ZOI effect range	Justification for ZOI effect range and conclusion for screening in for LSE consideration	Project phase potential impact may occur		
				Construction / installation	O&M	Decommissioning
	Distributional responses including barrier effects, Disturbance and Displacement (OAA).	The Project OAA and surrounding 2km buffer. The offshore ECC and surrounding 2km buffer.	Behavioural and population changes resulting from disturbance caused by sources of noise and / or vibration (air or ground borne) and/or visual disturbances, such as the presence of structures, or lighting. The ZOI effect ranges are applied with reference to advice from SNCBs (SNCBs, 2022) based on the ornithology receptors identified in Section 5.4. Furthermore, species such as divers have been noted to avoid shipping, with one study identifying red-throated diver flushing at a median value of 400m and a maximum value of 2km (Bellebaum <i>et al.</i>, 2006). Barrier effects and direct disturbance / displacement are considered within a single impact pathway, as recommended within Scoping Opinion comments.	✓	✓	✓
	Collision risk.	The rotor swept area of the WTGs within the Project OAA.	Potential for seabirds to directly collide with the WTGs, once in operation. Potential for LSE identified for the operational and maintenance phase only.	X	✓	X
	Indirect impacts due to the effects on prey species and habitats.	The Project OAA and ECC.	Potential for a loss of prey resources as a result of changes in fish communities and associated habitat. Potential for LSE identified for all phases of the Project.	✓	✓	✓
	Accidental pollution.	Up to 500m from the Project Boundary.	The impact of pollution including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect species' survival rates. It has been predicted for other offshore wind farms that any impact would be of local spatial extent, short term duration, and would not lead to a LSE. This is considered to be equally applicable to the Project, for which construction will be comparable in scale and O&M within the same environment, whilst implementing an appropriate approach to construction practices. Therefore, this potential impact has been not included for consideration of LSE.	X	X	X
	Entanglement with mooring lines.	The mooring lines associated with the WTGs within the Project OAA.	The mooring lines for the WTG have the potential to snag 'ghost' fishing gear and debris which diving seabird species could potentially become entangled within.	X	✓	X

7 HRA Screening Step 4: Determination of the Potential for Likely Significant Effects Alone and In-Combination Assessment

7.1 Introduction

- 7.1.1.1 This step identifies whether the Project described in **Chapter 2**, baseline conditions described in Step 2 (**Chapter 5**) and potential effects described in Step 3 (**Chapter 6**) have the potential to cause LSE on the qualifying features on those Designated sites initially screened in at Step 1 (**Chapter 4**). Each site, qualifying feature and screening rationale are detailed in the screening matrices in **Appendix A to C** and summarised in **Section 7.2**.

7.2 Summary of Screening results

7.2.1 Annex I habitats Screening results

- 7.2.1.1 **Appendix A** provides the Screening matrices for Annex I habitats. The designations identified in **Appendix A** for Annex I habitats relates to qualifying feature(s) above MHWS and no intertidal or subtidal species are included in the feature(s).
- 7.2.1.2 Due to the distance from the Project Boundary and the lack of identified impact pathways, no LSE were identified either alone or in combination for both the Loch of Strathbeg Ramsar and Buchan Ness to Collieston SAC.

7.2.2 Annex II marine mammals Screening results

- 7.2.2.1 **Appendix B** provides the Screening matrix for marine mammals.
- 7.2.2.2 The Moray Firth SAC, which includes bottlenose dolphin as a qualifying feature, is the only SAC for marine mammals screened into the assessment with potential for LSE. LSE includes potential for direct disturbance and displacement, collision risk, barrier effects, auditory injury, indirect impacts due to the effects on prey species and habitats and in-combination effects (e.g. impacts of underwater noise from other developments within and surrounding the Moray Firth). Some of these effects, such as disturbance and displacement could be possible during the construction phase whereas effects such as indirect impacts to prey species could be impacted across construction, O&M and decommissioning phases.
- 7.2.2.3 The distance between the potential impact range of the Project and the extent of any impact on individuals from Designated sites listed in **Table 4.4** (except the Moray Firth SAC) are negligible and would result in no potential for LSE either alone or in-combination.

7.2.3 Ornithological features screening results

- 7.2.3.1 **Appendix C** provides the Screening matrices for seabirds and migratory waterbirds with respect to the offshore, intertidal and onshore components of the Project.

Offshore ornithology

- 7.2.3.2 Based on the screening criteria set out in **Section 4.1.4**, a total of 42 Designated sites were identified for consideration of LSE. When considering the design of the Project (**Section 2.2.3**) and the baseline conditions (**Section 5.4**) for offshore ornithology the impact pathways for consideration of LSE are direct habitat loss, distributional responses, collision risk, indirect impacts (prey species and habitats), entanglement and in-combination effects (**Section 6.1**) across the construction, operation and decommissioning phases of the Project. Consideration of these impact pathways for the Designated sites identified are presented in **Appendix C**.

Intertidal ornithology

- 7.2.3.3 Based on the screening criteria set out in **Section 4.1.4**, a total of four Designated sites were identified for consideration of LSE. When considering the design of the Project (**Section 2.2.3**) and the baseline conditions (**Section 5.4**) for intertidal ornithology the impact pathways for consideration of LSE are direct temporary habitat loss, direct temporary disturbance and in-combination effects (**Section 6.1**) across the construction, operation and decommissioning phases of the Project. Consideration of these impact pathways for the Designated sites identified are presented in **Appendix C**.

Onshore ornithology

- 7.2.3.4 The Loch of Strathbeg SPA/Ramsar, the Ythan, Estuary, Sands of Forvie and Meikle Loch SPA, and the Ythan Estuary and Meikle Loch Ramsar each includes pink-footed geese as a qualifying feature. This is the only qualifying species screened into the assessment with respect to the onshore components of the Project with potential for LSE.
- 7.2.3.5 LSE includes potential for direct permanent loss of functionally linked habitat, direct disturbance and displacement and in-combination effects (e.g. disturbance and displacement effects from other developments within areas of identified functionally linked land north of Peterhead). Identified effects could be possible across construction, O&M and decommissioning phases.

7.3 Assessment of the potential for likely significant effects alone

7.3.1 Annex I habitats

- 7.3.1.1 Two sites designated for Annex I habitat interest – Loch of Strathbeg Ramsar and Buchan Ness to Collieston SAC were identified within a 5km (above MLWS) and 20km (below MHWS) search area of the Project Boundary.
- 7.3.1.2 Both sites have been taken forward for determination of LSE for Annex I habitats. Potential effects from the Project including direct permanent habitat loss, physical disturbance and indirect loss of habitat have been considered with respect to Loch of Strathbeg Ramsar and Buchan Ness to Collieston SAC and are provided in **Appendix A**.
- 7.3.1.3 No pathways of effect have been identified between both Sites supporting Annex I habitats and no LSE have been identified.

7.3.2 Annex II marine mammals

- 7.3.2.1 The following Section describes the process used to define the list of sites for which there is possible connectivity and therefore the potential for a source-pathway-receptor relationship for marine mammal qualifying SAC features.
- 7.3.2.2 SAC site designation for Annex II species is graded depending on the Designated site's conservation value where sites with species designated as a principal interest are graded either A or B and species of secondary interest are graded under C. Grade D indicates a non-significant population where species may be present, but the site is not considered important habitat for them.

Bottlenose dolphin

- 7.3.2.3 Connectivity is considered possible for bottlenose dolphins between the Project and any Designated sites where they are listed as a qualifying feature within the Coastal East Scotland MU and the Greater North Sea MU (IAMMWG, 2021). The Moray Firth SAC is located within the Coastal East Scotland MU and is approximately 120km west from the Project OAA. The Moray Firth SAC is graded as 'A' for bottlenose dolphins (NatureScot, 2021; where the *"site hold[s] outstanding examples of the habitat in a European context"*, JNCC, 2009). Populations of harbour porpoise, grey seal and harbour seal are also listed as present in the area but are all graded as 'D' and are therefore not qualifying species for this SAC. No SACs where bottlenose dolphins are a qualifying feature are found in the Greater North Sea MU.
- 7.3.2.4 Given the proximity of the Moray Firth SAC to the site and the nature of effects, effects cannot be screened out and therefore, there is a potential for LSE (see **Figure 7.1**). This Designated site and qualifying feature will therefore be taken through to Stage 2 – AA of the HRA process as outlined in **Section 3.2**.

Harbour porpoise

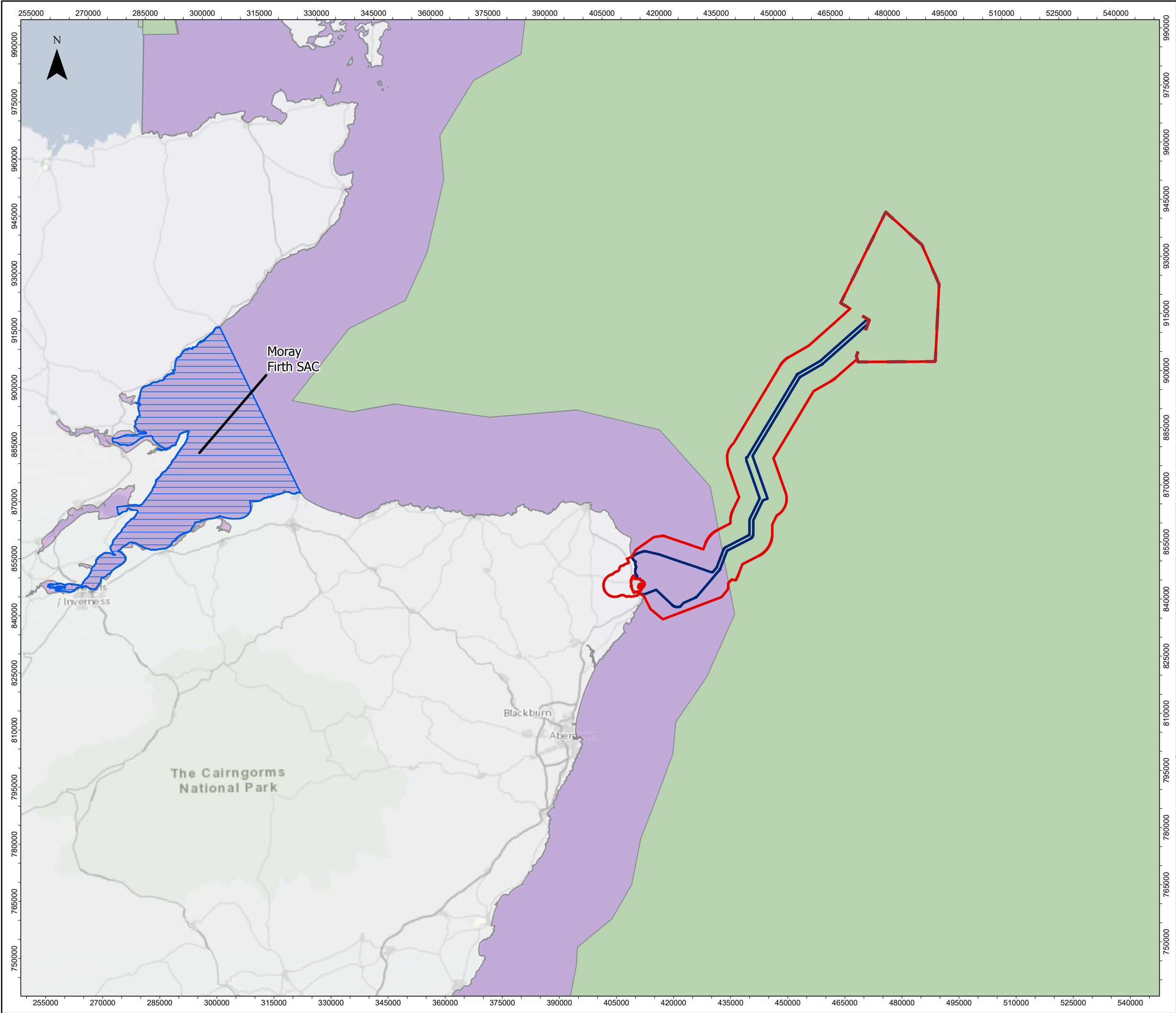
- 7.3.2.5 The Southern North Sea SAC is located approximately 280km south of the Project site. This site is graded 'A' for harbour porpoise as it supports 17.5% of the North Sea MU (*"Grade A: >15% to 100% of the relevant UK MU population"*, JNCC, 2017). Given the significant distance between the site and the Project (see **Figure 7.2**), it is considered that there will be no LSE to the site integrity of the Southern North Sea SAC. **Table 4.4** highlights several SACs across other jurisdictions which are located further from the Project, but still remain within the North Sea MU. As the SAC closest to the Project is assessed as having no LSE to the site integrity, all other sites further afield have also been screened out.

Grey seal

- 7.3.2.6 SAC site selection for seals is based on locations with established breeding colonies, as these sites are the most likely to make a contribution to securing FCS for these Annex II species. Connectivity within the screening process for grey seals is considered possible within 20km of any SAC. Although four sites have been highlighted within the relevant SMAs for grey seals, none of these sites fall within 20km from the boundary of the Project. Therefore, these sites have been screened out for no LSE based on the distance to the site (see **Figure 7.3**).

Harbour seal

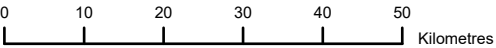
- 7.3.2.7 SAC site selection for seals is based on locations with established breeding colonies, as these sites are the most likely to make a contribution to securing FCS for these Annex II species. Connectivity within the screening process for harbour seals is considered possible within 50km of any SAC. Although three sites have been highlighted within the relevant SMAs, none of these sites fall within this 50km boundary from the Project. Therefore, these sites have been screened out for no LSE based on the distance to the site.



- Project Boundary
- NE7 Option Agreement Area
- Export cable survey corridor zone
- Moray Firth SAC

Bottlenose dolphin management unit

- Coastal East Scotland
- Greater North Sea



	ddmm/yyyy	--	--	--	--
2	24/05/2024	LT	AMc	MR	LG
1	04/12/2023	LT	AMc	MR	LG
REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER

WSP DRAWING NUMBER 808368-WEIS-IA-SC-FG-H3-5806

MarramWind DRAWING NUMBER MAR-GEN-CNS-MAP-WSP-000007

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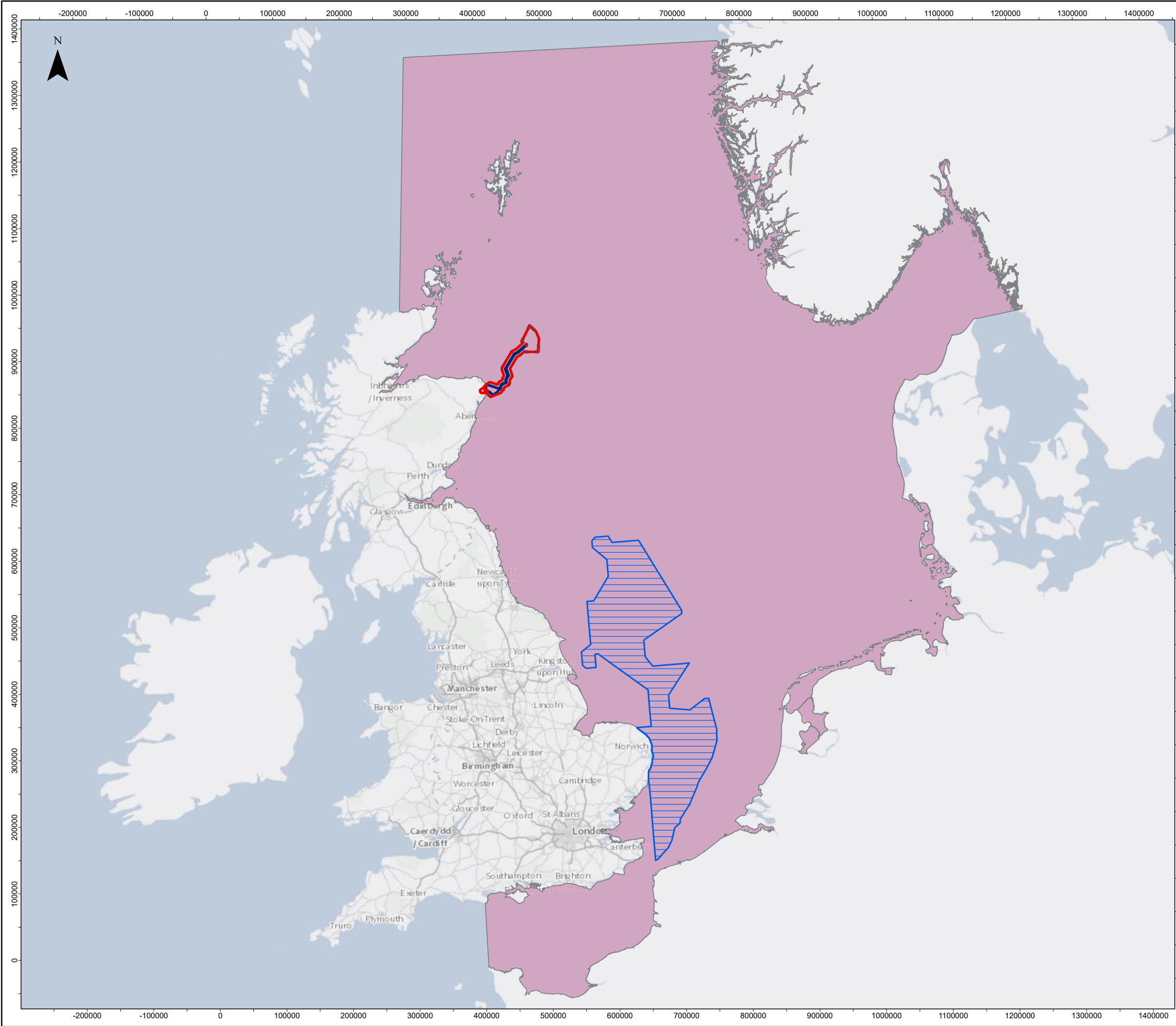
PROJECT TITLE
MarramWind Offshore Wind Farm

DRAWING TITLE
Figure 7.1 Bottlenose dolphin management units (Coastal East Scotland and Greater North Sea) and the Moray Firth SAC

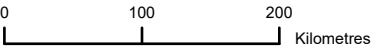
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- Project Boundary
- NE7 Option Agreement Area
- Southern North Sea SAC
- Export cable survey corridor zone
- Harbour porpoise North Sea management unit



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2	24/05/2024	LT	AMc	MR	LG
1	04/12/2023	LT	AMc	MR	LG
REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER

WSP DRAWING NUMBER 808368-WEIS-IA-SC-FG-H3-28582

MarramWind DRAWING NUMBER MAR-GEN-CNS-MAP-WSP-000008

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SCALE	1:5,500,000	PAGE SIZE	A3

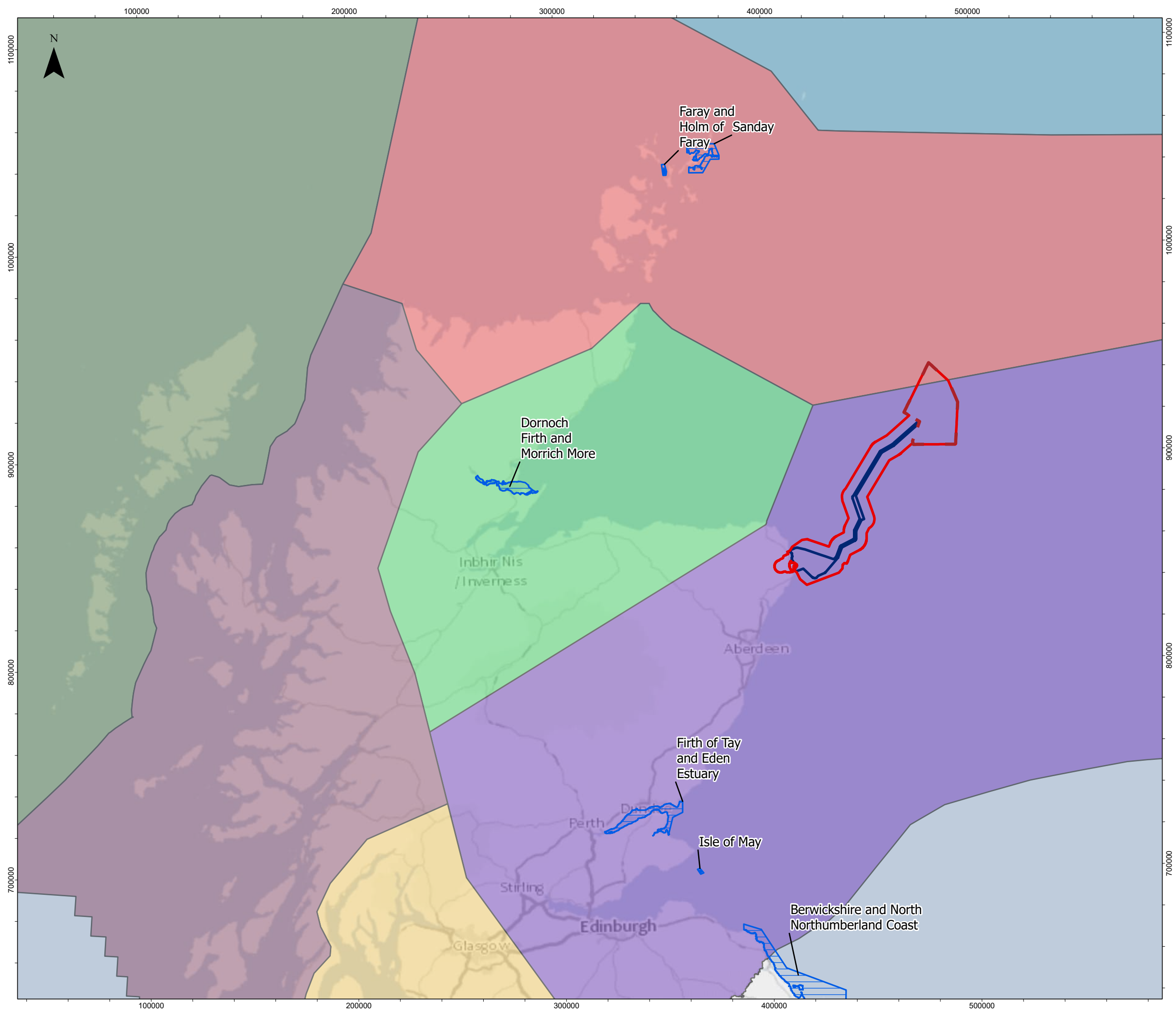
PROJECT TITLE
MarramWind Offshore Wind Farm

DRAWING TITLE
Figure 7.2 Harbour porpoise North Sea management unit with the Southern North Sea SAC

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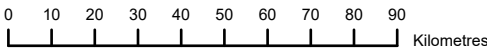




- Project Boundary
- NE7 Option Agreement Area
- Export cable survey corridor zone
- SAC

Seal management areas

- East Scotland
- Moray Firth
- North Coast & Orkney
- Shetland
- Southwest Scotland
- West Scotland
- Western Isles



	ddmm/yyyy	--	--	--	--
2	24/05/2024	LT	AMc	MR	LG
1	04/12/2023	LT	AMc	MR	LG
REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER

WSP DRAWING NUMBER 808368-WEIS-IA-SC-FG-H3-10130

MarramWind DRAWING NUMBER MAR-GEN-CNS-MAP-WSP-000009

DATUM	ETRS 89	PROJECTION	UTM Zone 30N
SCALE	1:1,750,000	PAGE SIZE	A3

PROJECT TITLE
MarramWind Offshore Wind Farm

DRAWING TITLE
Figure 7.3 Seal management areas (North Coast and Orkney, Moray Firth and East Scotland) and relevant SACs

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7.3.3 Ornithological features

Offshore ornithology

- 7.3.3.1 As presented within **Appendix C**, when considering the 42 Designated sites identified for consideration using the screening criteria set out in **Section 4.1.4** against the potential impacts identified in **Section 6.1**, the potential for LSE could not be ruled out for a total of 33 Designated sites. These Designated sites and applicable features will therefore be taken through to Stage 2 – of the HRA process as outlined in **Section 3.3**.

Intertidal ornithology

- 7.3.3.2 As presented within **Appendix C**, when considering the four Designated sites identified for consideration using the screening criteria set out in **Section 4.1.4** against the potential impacts identified in **Section 6.1**, the potential for LSE could not be ruled out for a total of two Designated sites; Buchan Ness to Collieston Coast SPA (for the Scotstown and Sandford Bay Landfall Zones) and Ythan Estuary, Sands of Forvie and Meikle Loch SPA (for the Lunderton and Sandford Bay Landfall Zones). These Designated sites and applicable features will therefore be taken through to Stage 2 – Appropriate Assessment of the HRA process as outlined in **Section 3.3**.

Onshore ornithology

- 7.3.3.3 As presented within **Appendix C**, when considering the Designated sites identified for consideration using the screening criteria set out in **Section 4.1.4** against the potential impacts identified in **Section 6.1**, the potential for LSE could not be ruled out for a total of four Designated sites and associated features. These Designated sites and features will therefore be taken through to Stage 2 – Appropriate Assessment of the HRA process as outlined in **Section 3.3**.

7.4 In-combination assessment

7.4.1 Overview

- 7.4.1.1 As stated in **Section 3.3**, the assessment provided within this HRA Screening Report takes into account the CJEU ruling on 'People over Wind'. It has also adopted a strong precautionary principle; if a pathway of effect is established between the Project and a Designated site, then that effect is considered for LSE. This ensures all effects are considered, including *de minimis* effects.
- 7.4.1.2 Only those qualifying features and Designated sites where it can be demonstrated that there is no likelihood of an LSE occurring have been screened out.
- 7.4.1.3 Therefore, due to the precautionary approach taken to the HRA Screening process and identification of LSEs for the Project, in-combination effects will only need to be considered if:
- it is found that the Project is likely to result in LSE alone on the Designated sites; and
 - it is found that the Project causes *de minimis* effect, but not sufficient to trigger LSE from the Project alone but where there is potential for the effect to increase beyond *de minimis* in-combination with an effect(s) from another plan or project.

- 7.4.1.4 In other words, the potential for in-combination LSE is fully considered by only screening out sites with no pathway of effect - because if there is no pathway for an effect from the Project alone then the Project cannot contribute to an in-combination effect.

7.4.2 Annex I habitats

- 7.4.2.1 No pathways of effect have been identified between Designated sites supporting Annex I habitats (Loch of Strathbeg Ramsar and Buchan Ness to Collieston SAC) and the Project and no in-combination effects have been identified (see **Appendix A**).

7.4.3 Annex II marine mammals

- 7.4.3.1 The potential for LSE in-combination for marine mammals will be determined based on the following:
- a plan or project that has the potential for impacts on marine mammals from the construction, O&M, or decommission phases which has a temporal and / or spatial overlap with the proposed Project; and
 - a plan or project is within the ZOI of a Designated site screened into this assessment or where there is the potential for connectivity and clear pathway for the in-combination effect.

7.4.4 Ornithological features

- 7.4.4.1 A screening exercise of plans and projects for inclusion within in-combination assessments will be completed prior to commencement of the Project's AA. The potential for in-combination impacts to occur will be considered seasonally based on the seasonal definitions presented within the Project's Scoping Report (MarramWind Ltd., 2023), which is in accordance with NatureScot's Guidance Note 9 (2023b). Identification of projects for inclusion will be based on the types of projects described in **Section 7.4.5**. When selecting Designated sites for inclusion / exclusion consideration will also be given to effect-receptor pathways, data confidence and temporal scales.
- 7.4.4.2 Planned and operational projects may be screened out for potential in-combination effects where an impact-receptor-pathway during construction, O&M, or decommissioning has not been identified for the following reasons:
- there is no potential impact-receptor-pathway cited by the project;
 - there is no temporal overlap between projects / activities;
 - the project / activity is ongoing and is part of the current baseline; and
 - there is no data available or there is low confidence in the data.
- 7.4.4.3 For example, projects that will be screened out for in-combination assessment consideration may include:
- UK offshore wind farms evaluated as having low data confidence on the basis that no construction or operational period is known; and
 - Ongoing offshore operations such as commercial fisheries and shipping, due to being evaluated as part of the offshore baseline.

7.4.5 In-combination assessment

- 7.4.5.1 In assessing the potential in-combination impacts of the Project against ecological receptors, account is taken in the assessment process of the fact that some projects, such as those put forward by developers into the consenting process, may not be consented or built out as described within their consent application. There is, therefore, a need to build in some consideration of certainty (or uncertainty) with respect to the potential impacts which might arise from such proposed but as yet unconsented projects. For example, a comparison with regards to certainty of effects can be made between those projects that are under construction and those proposals not yet approved where there is, in this second example, much less certainty about the scale of an impact. This is because some proposals may not achieve approval, may be built out at a scale less than the maximum described in the Scoping Report or EIA Report, or may not be built at all due to other factors.
- 7.4.5.2 To account for this in the in-combination assessments, all projects considered alongside the Project will be allocated into 'tiers' and 'sub-tiers' reflecting their current stage within the planning and development process (see **Table 7.1**). This allows the in-combination impact assessment to present several future development scenarios, each with a differing potential for being ultimately built out. This approach also allows appropriate weight to be given to each scenario (tier) when considering the potential in-combination impact. The proposed tier structure is intended to ensure that there is a clear understanding of the level of confidence in the in-combination assessment for the Project's AA.

Table 7.1 Description of tiers and sub-tiers which will be considered in the in-combination assessments.

Tier	Sub-Tier	Description of stage of development of project
Tier 1	Tier 1a	Developments in operation.
	Tier 1b	Developments under construction.
	Tier 1c	Permitted applications, whether under the Electricity Act 1989; Marine and Coastal Access Act 2009 (between 12 and 200nm) and the Marine (Scotland) Act 2010 (between 0 and 12nm); Town and Country Planning (Scotland) Act 1997; or other regimes, but not yet implemented.
	Tier 1d	Submitted applications, whether under the Electricity Act 1989; Marine and Coastal Access Act 2009 (between 12 and 200nm) and the Marine (Scotland) Act 2010 (between 0 and 12nm); Town and Country Planning (Scotland) Act 1997; or other regimes, but not yet determined.
Tier 2	N/A	Other developments where a Scoping Report has been submitted.
Tier 3	Tier 3a	Other developments where a Scoping Report has not been submitted.

Tier	Sub-Tier	Description of stage of development of project
	Tier 3b	Other developments identified in the relevant Development Plan (and emerging Development Plans with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited.
	Tier 3c	Identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

7.4.5.3 Based on work done to date to determine which projects may be relevant, a number of projects have been identified (see **Table 7.2**). This presents Tier 1 projects only at this stage as the status of proposals within Tiers 2 and 3 are subject to change. It is not a definitive list and will be reviewed during the RIAA.

Table 7.2 Tier 1 projects to be considered in the in-combination assessment

Projects	
Tier 1a	
2B Energy Methil Demonstration Aberdeen Offshore Wind Farm Beatrice Offshore Wind Farm Blyth Demo Phase 1 Dogger Bank A Offshore Wind Farm Dudgeon Offshore Wind Farm East Anglia ONE Offshore Wind Farm Galloper Offshore Wind Farm Greater Gabard Offshore Wind Farm Gunfleet Sands Offshore Wind Farm Hornsea Project ONE Offshore Wind Farm Hornsea Project TWO Offshore Wind Farm Humber Gateway Offshore Wind Farm Hywind Scotland Pilot Park EMEC Magallanes 2 Tidal EMEC Billia Croo Wave EMEC Scapa Flow Wave Meygen Pentland Firth Phase 1a Deerness Wave	Kentish Flats Offshore Wind Farm Kincardine Offshore Wind Farm Lincs Offshore Wind Farm London Array Offshore Wind Farm Lynn and Inner Dowsing Offshore Wind Farm Moray East Offshore Wind Farm Race Bank Offshore Wind Farm Sheringham Shoal Offshore Wind Farm Teeside Offshore Wind Farm Triton Knoll Offshore Wind Farm Westermest Rough Offshore Wind Farm Hywind Tampen Offshore Wind Farm TetraSpar Demonstrator UNITECH Zefyros Offshore Wind Farm EMEC Orbital O2 Tidal EMEC Fall of Warness Tidal EMEC Shapinsay Sound Shetland Tidal Array
Tier 1b	
Blyth Demo Phase 2 Dogger Bank B Offshore Wind Farm Dogger Bank C Offshore Wind Farm Inch Cape Offshore Wind Farm	Moray West Offshore Wind Farm Naert na Gaoithe Offshore Wind Farm Seagreen Offshore Wind Farm Sofia Offshore Wind Farm

Projects	
Acorn Carbon Capture and Storage	
Tier 1c	
East Anglia ONE North Offshore Wind Farm East Anglia TWO Offshore Wind Farm Hornsea Project FOUR Offshore Wind Farm Hornsea Project THREE Offshore Wind Farm Norfolk Vanguard Offshore Wind Farm Meygen Pentland Firth Phase 2 Orbital Marine Eday 1 Peterhead 400kV Substation Eastern Green Link 2 – HVDC Converter Station Birdgend Quarry Mineral Extraction Savoch Quarry Extension Nethermill Development Overhead Line Works to Connect into Peterhead Substation	Pentland Floating Offshore Wind Farm Flagship – Metcentre Offshore Wind Farm Eastern Green Link 2 HVDC NorthConnect EMEC Orbital O2 -Phase 2 Tidal Meygen Pentland First Phase 3 Perpetuus Tidal Energy Centre Peterhead Carbon Capture Power Station Frodo Solar Farm St Fergus Gas 132/11kV Substation Greenacres Phase 5 Residential Development Blackhills Quarry Green Volt Offshore Wind (Onshore Infrastructure) Green Volt Floating Offshore Wind Farm
Tier 1d	
Berwick Bank Offshore Wind Farm EMEC Magallanes 2 Tidal CorPack Wave Cluster Orbital Eday 4 Tidal Kirkton Solar Photovoltaic and Energy Storage Facility Salamander Offshore Wind Farm Ossian Offshore Wind Farm	Sheringham and Dudgeon Extension Offshore Wind Farm West of Orkney Offshore Wind Farm Orbital Eday 3 Tidal Seastar Tidal Inverugie Meadows Residential Mixed Use Development

7.4.5.4 The Project is aware of other projects that are currently in Tier 3 and these will be assessed for consideration in the RIAA. An overview of the projects that will be considered for in-combination with the Project include:

- other offshore wind farms and associated cabling and infrastructure;
- other renewable energy developments (e.g. wave and tidal energy);
- oil and gas infrastructure (cables and pipelines);
- other cables and pipelines (e.g. telecommunications and interlinks);
- potential port / harbour development;
- beach replenishment schemes;
- aggregate, dredging and disposal schemes;
- carbon capture storage;
- onshore commercial developments;

- minerals;
- onshore energy (e.g. overhead lines and substations);
- residential developments;
- rights of way; and
- transport.

8 Summary of Likely Significant Effects

- 8.1.1.1 A summary of the Designated sites (and relevant features) for which the potential for LSE could not be discounted during Screening is provided in **Table 8.1**. The full Screening is reported in the Screening Matrices (**Appendix A to C**).
- 8.1.1.2 Regarding Designated sites for Annex I habitats, the assessment of LSE in **Section 7.3.1** considered one SAC and one Ramsar site for which LSE was not determined, and therefore, both sites were screened out for further consideration in AA.
- 8.1.1.3 Among the Designated sites considered in the HRA Screening for marine mammals, one SAC has been screened in for further assessment. This was done to determine the potential for any adverse effects on integrity of the site in relation to the conservation objectives (as a result of the Project alone and / or in-combination with other plans / projects). For further information see **Appendix B**.
- 8.1.1.4 **Table 8.1** also provides a summary of the SPA and Ramsar sites and relevant features for which a potential for LSE has been identified as a result of the Project, alone and / or in-combination with other plans / projects. In total, 33 sites have been identified for offshore ornithology for consideration in AA; two sites have been identified to be taken forward for intertidal ornithology consideration; and four sites have been identified to be taken forward for onshore ornithology consideration. For further information see **Appendix C**.

Table 8.1 Consideration of likely significant effect – summary of conclusions for the Project

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
A	Loch of Strathbeg Ramsar	Naturally eutrophic loch and dune slack.	No LSE.	No LSE.	No LSE.	The Ramsar is 4,125m to the north east of the Project Boundary at its nearest point (in the marine environment) and 5,110m to the north of the Project Boundary (in the terrestrial environment), which means it does not overlap with nor does it fall within the ZOI for the Project. Therefore, no effects pathways have been identified and no LSE either alone or in-combination is identified.	No
A	Buchan Ness to Collieston SAC	Vegetated sea cliffs of the Atlantic and Baltic coasts.	No LSE.	No LSE.	No LSE.	The SAC is 850m to the south west of the Project Boundary at its nearest point (in the marine environment) and 1,700m to the south of the Project Boundary (in the terrestrial environment), which means it does not overlap with, nor does it fall within the ZOI for the Project. Therefore, no effects pathways have been identified and no LSE either alone or in combination is identified.	No
B	Moray Firth SAC	Bottlenose dolphin	Disturbance and displacement from underwater noise; collision risk with vessels; barrier effects; indirect impacts due to effects on prey species and habitats; and in-combination effects with other Projects under development within and surrounding the Moray Firth.	Coastal East Scotland MU	No direct overlap with SAC but may have connectivity with the qualifying feature species of this Designated site.	Potential effects (indicated in potential effect pathway to LSE column) cannot be screened out at this stage and therefore there is a potential for LSE on this resident population of bottlenose dolphins. This population is relatively small 224 (95% CI = 214-234), which is a factor in screening this qualifying feature into the assessment.	Yes
B	Dornoch Firth and Morrich More SAC	Harbour seal	No LSE.	No LSE.	No LSE.	The Project is located 150km from this SAC which means it does not overlap with nor does it fall within the ZOI for this development. Due to the typical behaviour of harbour seals, there is negligible risk of connectivity to the site for this population. Therefore, no LSE is identified.	No
B	Sanday SAC	Harbour seal	No LSE.	No LSE.	No LSE.	The Project is located 170km from this SAC which means it does not overlap with nor does it fall within the ZOI for this development. Due to the typical behaviour of harbour seals, there is negligible risk of connectivity to the site for this population. Therefore, no LSE is identified.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
B	Isle of May SAC	Grey seal	No LSE.	No LSE.	No LSE.	The Project is located 185km from this SAC, which means it does not overlap with nor does it fall within the ZOI for this development. Due to the typical behaviour or grey seals, there is negligible risk of connectivity to the site for this population. Therefore, no LSE is identified.	No
B	Firth of Tay and Eden Estuary SAC	Harbour seal	No LSE.	No LSE.	No LSE.	The Project is located 165km from this SAC, which means it does not overlap with nor does it fall within the ZOI for this development. Due to the typical behaviour or harbour seals, there is negligible risk of connectivity to the site for this population. Therefore, no LSE is identified.	No
B	Faray and Holm of Faray SAC	Grey seal	No LSE.	No LSE.	No LSE.	The Project is located 185km from this SAC, which means it does not overlap with nor does it fall within the ZOI for this development. Due to the typical behaviour or grey seals, there is negligible risk of connectivity to the site for this population. Therefore, no LSE is identified	No
B	Berwickshire and North Northumberland Coast SAC	Grey seal	No LSE.	No LSE.	No LSE.	The Project is located 205km from this SAC, which means it does not overlap with nor does it fall within the ZOI for this development. Due to the typical behaviour or grey seals, there is negligible risk of connectivity to the site for this population. Therefore, no LSE is identified	No
B	Southern North Sea SAC	Harbour porpoise	No LSE.	No LSE.	No LSE.	The Project is located 280km from this SAC, which means it does not overlap with nor does it fall within the ZOI for this development. The main conservation objective of this SAC is to conserve site integrity and the Project is located too far away to have any effect on the site. Therefore, no LSE is identified.	No
C	Buchan Ness to Collieston Coast SPA	Seabird assemblage	Offshore: Direct habitat loss; distributional responses; collision risk; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).	Offshore: LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage qualifying feature.		Yes
			Intertidal: Direct temporary habitat loss; direct temporary disturbance and	Intertidal: Criteria 1, 2 and 3 (breeding season).	Intertidal: LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage qualifying feature.		Yes

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
			displacement, in-combination.				
			Onshore: Direct temporary disturbance and displacement; In-combination.	Onshore: No LSE		Onshore: Features not recorded within onshore environment and no connectivity between jointing bay and intertidal area, therefore no pathway for effect. No LSE identified.	No
		Kittiwake (CoSA)	Offshore: Direct habitat loss; distributional responses; collision risk; In-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Offshore: Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
			Intertidal: No LSE.	Intertidal: No LSE.		Intertidal: Feature recorded within limited numbers within the intertidal environment, therefore no potential for a LSE, regardless of the impact pathway. No LSE identified.	No
			Onshore: No LSE.	Onshore: No LSE.		Onshore: Feature not recorded within onshore environment and no connectivity between jointing bay and intertidal area, therefore no pathway for effect. No LSE identified.	No
		Herring gull (CoSA)	Offshore: direct habitat loss; collision risk; in-combination.	Offshore: Criterion 1 (ECC only) and 2 (non-breeding season only).		Offshore: Connectivity to the Project and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season.	Yes
			Intertidal: Direct temporary habitat loss; direct temporary disturbance and displacement.	Intertidal: Criteria 1, 2 and 3 (breeding season).		Intertidal: Important SPA numbers recorded during intertidal bird surveys. Screened in due to overlap of Landfall Zone Sandford Bay with SPA boundary. LSE identified during the breeding season.	Yes
			Onshore: No LSE.	Onshore: No LSE.		Onshore: Feature recorded in limited numbers within the onshore environment, and no connectivity between jointing bay and intertidal area, therefore no pathway for effect.	No
		Guillemot (CoSA)	Offshore: Direct habitat loss; distributional responses; entanglement; in-combination.	Offshore: Criterion 1 (ECC only) and 2 (breeding and non-breeding season).		Offshore: Connectivity to the Project and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
			Intertidal: Direct temporary disturbance and displacement; in-combination.	Intertidal: Criteria 1, 2 and 3 (breeding season).		Intertidal: Feature recorded in important numbers within the nearshore environment, therefore potential for a LSE in the breeding season due to sensitivity to disturbance.	Yes
			Onshore: No LSE.	Onshore: No LSE.		Onshore: Feature not recorded within onshore environment and no connectivity between jointing bay and intertidal area, therefore no pathway for effect.	No
		Fulmar (CoSA)	Offshore: Direct habitat loss.	Offshore: Criterion 1 (ECC only) and 2 (breeding and non-breeding season).		Offshore: Connectivity and sensitivity to impact pathway identified in the offshore ECC. Potential for LSE concluded in the breeding season	Yes
			Intertidal: No LSE.	Intertidal: No LSE.		Intertidal: Feature recorded within limited numbers within the intertidal environment, therefore no potential for a LSE, regardless of the impact pathway. No LSE concluded.	No
			Onshore: No LSE.	Onshore: No LSE.		Onshore: Feature not recorded within onshore environment and no connectivity between jointing bay and intertidal area, therefore no pathway for effect.	No
		Shag (CoSA)	Offshore: Direct habitat loss.	Offshore: Criterion 1 (ECC only).		Offshore: Connectivity and sensitivity to impact pathway identified in the offshore ECC. Potential for LSE concluded in the breeding season.	Yes
			Intertidal: Direct temporary disturbance and displacement; in-combination.	Intertidal: Criteria 1, 2 and 3 (breeding season).		Intertidal: Feature recorded in important numbers within the nearshore environment, therefore potential for a LSE in the breeding season due to sensitivity to disturbance.	Yes
			Onshore: No LSE.	Onshore: No LSE.		Onshore: Feature not recorded within onshore environment and no connectivity between jointing bay and intertidal area, therefore no pathway for effect.	No
C	Loch of Strathbeg SPA / Ramsar	Svalbard barnacle goose (non-breeding)	Offshore: Collision risk; In-combination.	Offshore: Criterion 2 (non-breeding season only).		Offshore: Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
			Intertidal: No connectivity.	Intertidal: N/A.		Intertidal: no wildfowl qualifying features of the SPA were recorded within the intertidal environment. Therefore, no potential connectivity concluded.	No
			Onshore: No LSE.	Onshore: No LSE		Onshore: Feature not recorded within onshore environment and no connectivity between jointing bay and intertidal area, therefore no pathway for effect.	No
		Greylag goose (non-breeding)	Offshore: No connectivity.	Offshore: N/A.		Offshore: No connectivity to Project OAA, therefore no pathway for effect.	No
			Intertidal: No connectivity.	Intertidal: N/A.		Intertidal: No wildfowl qualifying features of the SPA were recorded within the intertidal environment. Therefore, no potential connectivity concluded.	No
			Onshore: No LSE.	Onshore: No LSE.		Onshore: Feature not recorded within onshore environment and no connectivity between jointing bay and intertidal area, therefore no pathway for effect.	No
		Pink-footed goose (non-breeding)	Offshore: No connectivity.	Offshore: N/A.		Offshore: No connectivity to Project OAA, therefore no pathway for effect.	No
			Intertidal: No connectivity.	Intertidal: N/A.		Intertidal: No wildfowl qualifying features of the SPA were recorded within the intertidal environment. Therefore, no potential connectivity concluded.	No
			Onshore: Disturbance and displacement; In-combination.	Onshore: Criterion 3 (non-breeding season only).		Onshore: Connectivity to the onshore land with potential functional linkage to Loch of Strathbeg SPA / Ramsar and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season.	Yes
		Whooper swan (non-breeding)	Offshore: No connectivity.	Offshore: N/A.		Limited connectivity to land within the onshore Project Boundary and Project OAA and no species sensitivity to impact pathways identified. No LSE concluded.	No
			Intertidal: No connectivity.	Intertidal: N/A.		Intertidal: no wildfowl qualifying features of the SPA were recorded within the intertidal	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
						environment. Therefore, no potential connectivity concluded.	
			Onshore: No LSE	Onshore: No LSE		Onshore: Feature not recorded within onshore environment and no connectivity between jointing bay and intertidal area, therefore no pathway for effect.	No
		Sandwich tern (breeding)	Offshore: No connectivity.	Offshore: N/A.		Offshore: No connectivity to Project OAA, therefore no pathway for effect.	No
			Intertidal: No LSE.	Intertidal: No LSE.		Intertidal: Although Sandwich terns were recorded within the Project's intertidal surveys, when considering the location of the records, coupled with the limited temporal and spatial footprint of potential impacts a finding of no potential for LSE is concluded.	No
			Onshore: No LSE	Onshore: No LSE		Onshore: Feature not recorded within onshore environment and no connectivity between jointing bay and intertidal area, therefore no pathway for effect.	No
		Waterfowl assemblage (non-breeding)	Offshore: Collision risk.	Offshore: Criterion 2 (non-breeding season only).		Offshore: LSE identified for components of the waterbird assemblage. Therefore, potential for LSE in the non-breeding season.	Yes
			Intertidal: No connectivity.	Intertidal: N/A.		Intertidal: No wildfowl qualifying features of the SPA were recorded within the intertidal environment. Therefore, no potential connectivity concluded.	No
			Onshore: Disturbance and displacement; In-combination.	Onshore: Criterion 3 (non-breeding season only).		Onshore: LSE identified for component of the waterbird assemblage (pink-footed goose). Therefore, potential for LSE in the non-breeding season.	Yes
		Teal (CoWA)	Offshore: Collision risk.	Offshore: Criterion 2 (non-breeding season only).		Offshore: Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
			Intertidal: No connectivity.	Intertidal: N/A.		Intertidal: No wildfowl qualifying features of the SPA were recorded within the intertidal	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
						environment. Therefore, no potential connectivity concluded.	
			Onshore: No LSE	Onshore: No LSE		Onshore: Feature recorded in limited numbers within the onshore environment, therefore no potential for a LSE, regardless of the impact pathway. No LSE concluded.	No
		Goldeneye (CoWA)	Offshore: Collision risk.	Offshore: Criterion 2 (non-breeding season only).		Offshore: Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
			Intertidal: No connectivity.	Intertidal: N/A.		Intertidal: No wildfowl qualifying features of the SPA were recorded within the intertidal.	No
			Onshore: No LSE.	Onshore: No LSE.		Onshore: Feature not recorded within onshore environment and no connectivity between jointing bay and intertidal area, therefore no pathway for effect.	No
C	Troup, Pennan and Lion's Head SPA	Guillemot	Offshore: Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding seasons).		Offshore: Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding seasons.	Yes
		Seabird assemblage (breeding)	Offshore: Distributional responses; collision risk; entanglement; in-combination.	Offshore: Criterion 2 (breeding season only).		Offshore: LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Kittiwake (CoSA)	Offshore: Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding seasons).		Offshore: Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding seasons.	Yes
		Herring gull (CoSA)	Offshore: Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Offshore: Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding seasons.	Yes
		Razorbill (CoSA)	Offshore: Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding seasons).		Offshore: Connectivity to the Project OAA and species sensitivity to impact pathways identified.	Yes

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
						Potential for LSE during the non-breeding seasons.	
		Fulmar (CoSA)	Offshore: No LSE.	Offshore: No LSE.		Offshore: Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
C	Ythan, Estuary, Sands of Forvie and Meikle Loch SPA / Ramsar	Pink-footed goose	Offshore: No connectivity.	Offshore: N/A.		Offshore: No connectivity to Project OAA, therefore no pathway for effect.	No
			Intertidal: No LSE.	Intertidal: No LSE.		Intertidal: Feature recorded within limited numbers within the intertidal environment, therefore no potential for a LSE, regardless of the impact pathway. No LSE concluded.	No
			Onshore: Disturbance and displacement; In-combination.	Onshore: Criterion 3 (non-breeding).		Onshore: Connectivity to the onshore land with potential functional linkage to Ythan Estuary, Sands of Forvie and Meikle Loch SPA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season.	Yes
		Sandwich tern (breeding)	Offshore: No connectivity.	Offshore: N/A.		Offshore: No connectivity to Project OAA, therefore no pathway for effect.	No
			Intertidal: No LSE.	Intertidal: No LSE.		Intertidal: Although Sandwich terns were recorded within the Project's intertidal surveys, when considering the location of the records, coupled with the limited temporal and spatial footprint of potential impacts a finding of no potential for LSE is concluded.	No
			Onshore: No LSE	Onshore: No LSE		Onshore: Feature not recorded within onshore environment and no connectivity between jointing bay and intertidal area, therefore no pathway for effect.	No
		Common tern (breeding)	Offshore: No connectivity.	Offshore: N/A		Offshore: No connectivity to Project OAA, therefore no pathway for effect.	No
			Intertidal: No LSE.	Intertidal: No LSE.		Intertidal: Feature recorded within limited numbers within the intertidal environment, therefore no potential for a LSE, regardless of the impact pathway. No LSE concluded.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
			Onshore: No LSE	Onshore: No LSE		Onshore: Feature not recorded within onshore environment and no connectivity between jointing bay and intertidal area, therefore no pathway for effect.	No
		Little tern (breeding)	Offshore: No connectivity.	Offshore: N/A.		Offshore: No connectivity to Project OAA, therefore no pathway for effect.	No
			Intertidal: No connectivity.	Intertidal: N/A.		Intertidal: No connectivity to the intertidal environment of the Project, therefore no pathway for effect.	No
			Onshore: No LSE.	Onshore: No LSE.		Onshore: No connectivity to the onshore environment of the Project, therefore no pathway for effect.	No
		Waterbird assemblage (non-breeding)	Offshore: Collision risk.	Offshore: Criterion 2 (non-breeding season only).		Offshore: Potential for LSE identified for components of the waterbird assemblage. Therefore, potential for LSE concluded for the waterbird assemblage.	Yes
			Intertidal: Direct temporary habitat loss; direct temporary disturbance and displacement; in-combination.	Intertidal: Criteria 2 and 3 (non-breeding season).		Intertidal: Potential for LSE identified for components of the waterbird assemblage. Therefore, potential for LSE concluded for the waterbird assemblage.	Yes
			Onshore: No LSE.	Onshore: No LSE.		Onshore: Features not recorded within onshore environment and no connectivity between jointing bay and intertidal area, therefore no pathway for effect.	No
		Eider (CoWA)	Offshore: No connectivity.	Offshore: N/A.		Offshore: No connectivity to Project OAA, therefore no pathway for effect.	No
			Intertidal: Direct temporary disturbance and displacement; in-combination.	Intertidal: Criteria 2 and 3 (non-breeding season).		Intertidal: Important numbers of eider recorded at Landfall Zones Lunderton and Sandford Bay. Potential for LSE in the non-breeding season.	Yes
			Onshore: No LSE.	Onshore: No LSE.		Onshore: Feature not recorded within onshore environment and no connectivity between jointing	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
						bay and intertidal area, therefore no pathway for effect.	
		Lapwing (CoWA)	Offshore: Collision risk.	Offshore: Criterion 2 (non-breeding season).		Offshore: Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
			Intertidal: No LSE.	Intertidal: No LSE.		Intertidal: Feature recorded within limited numbers within the intertidal environment, therefore no potential for a LSE, regardless of the impact pathway. No LSE concluded.	No
			Onshore: No LSE.	Onshore: No LSE.		Onshore: Feature not recorded within onshore environment and no connectivity between jointing bay and intertidal area, therefore no pathway for effect.	No
		Redshank (CoWA)	Offshore: No connectivity.	Offshore: Criterion 2 (non-breeding season).		Offshore: Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
			Intertidal: Direct temporary habitat loss; direct temporary disturbance and displacement; in-combination.	Intertidal: Criteria 2 and 3 (non-breeding season).		Intertidal: Important numbers of redshank recorded at Sandford Bay. Potential for LSE in the non-breeding season.	Yes
			Onshore: No LSE.	Onshore: No LSE.		Onshore: Feature not recorded within onshore environment and no connectivity between jointing bay and intertidal area, therefore no pathway for effect.	No
C	Moray Firth SPA	Great northern diver	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Red-throated diver	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Slavonian grebe	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Scaup	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Eider	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Long-tailed duck	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Common scoter	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Velvet scoter	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Goldeneye	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Red-breasted merganser	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Shag	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
C	Loch of Skene SPA	Greylag goose	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Goldeneye	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Goosander	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
C	Fowlsheugh SPA	Kittiwake	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding seasons).		Potential for connectivity to Project OAA and species sensitivity to impact pathways identified. Potential for LSE.	Yes
		Seabird assemblage (breeding)	Distributional responses; collision risk; entanglement; in-combination.	Offshore: Criterion 2 (breeding season only).		Potential for connectivity to Project OAA and species sensitivity to impact pathways identified. Potential for LSE.	Yes
		Herring gull (CoSA)	Collision risk; In-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA and species sensitivity to impact pathways identified. Potential for LSE.	Yes
		Razorbill (CoSA)	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA and species sensitivity to impact pathways identified. Potential for LSE.	Yes
		Fulmar	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
		Guillemot	No Connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
C	East Caithness Cliffs SPA	Kittiwake	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Herring gull	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season.	Yes

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Guillemot	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Razorbill	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding seasons.	Yes
		Shag	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Peregrine	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Seabird assemblage	Distributional responses; collision risk; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Great black-backed gull (CoSA)	Collision risk; In-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season.	Yes
		Fulmar (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
C	North Caithness Cliffs SPA	Guillemot	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Peregrine	No connectivity	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Seabird assemblage	Distributional responses; collision risk; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Kittiwake (CoSA)	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Razorbill (CoSA)	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding seasons.	Yes
		Puffin (CoSA)	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Fulmar (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
C	Moray and Nairn Coast SPA	Pink-footed goose (non-breeding)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Greylag goose (non-breeding)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Bar-tailed godwit (non-breeding)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Red-breasted merganser (non-breeding)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Wigeon (non-breeding)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Redshank (non-breeding)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Dunlin (non-breeding)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Oystercatcher (non-breeding)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Osprey (breeding)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Waterbird assemblage (non-breeding)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for LSE identified for components of the waterbird assemblage. Therefore, potential for LSE concluded for the waterbird assemblage.	Yes
C	Dornoch Firth and Loch Fleet SPA	Greylag goose	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Bar-tailed godwit	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Wigeon	Collision risk; In-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Osprey	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Waterbird assemblage (non-breeding)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for LSE identified for components of the waterbird assemblage. Therefore, potential for LSE concluded for the waterbird assemblage.	Yes
		Teal (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Scaup (CoWA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Curlew (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact	Yes

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
						pathways identified. Potential for LSE in the non-breeding season.	
		Redshank (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Dunlin (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Oystercatcher (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
C	Inner Moray Firth SPA	Greylag goose	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Red-breasted merganser	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Bar-tailed godwit	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Redshank	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Common tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Osprey	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Waterbird assemblage (non-breeding)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for LSE identified for components of the waterbird assemblage. Therefore, potential for LSE concluded for the waterbird assemblage.	Yes
		Cormorant (CoWA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Teal (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Wigeon (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Goldeneye (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Goosander (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Scaup (CoWA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Curlew (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Oystercatcher (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
C	Cromarty Firth SPA	Whooper swan	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Greylag goose	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Bar-tailed godwit	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Common tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Osprey	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Waterbird assemblage (non-breeding)	Collision risk.	Offshore: Criterion 2 (non-breeding season only).		Potential for LSE identified for components of the waterbird assemblage. Therefore, potential for LSE concluded for the waterbird assemblage.	Yes
		Red-breasted merganser (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Scaup (CoWA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Pintail (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Wigeon (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Redshank (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Curlew	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact	Yes

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
						pathways identified. Potential for LSE in the non-breeding season.	
		Oystercatcher (CoWA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Dunlin (CoWA)	Collision risk.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Knot (CoWA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
C	Loch Ashie SPA	Slavonian grebe	No LSE.	Offshore: No LSE.		Potential for connectivity to Project OAA on migration considered highly limited based on known flight paths, especially considering the limited number of individuals which make up the citation population. LSE can be ruled out.	No
C	Caithness and Sunderland Peatlands SPA	Red-throated diver	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Black-throated diver	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Common scoter	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration considered highly limited based on known broad migratory front, especially considering the limited number of individuals.	Yes
		Wigeon	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration considered highly limited based on known broad migratory front, especially considering the limited number of individuals.	Yes
		Golden plover	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Wood sandpiper	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Dunlin	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Greenshank	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Potential for connectivity to Project OAA on migration and species sensitivity to impact pathways identified. Potential for LSE in the non-breeding season.	Yes
		Short-eared owl	No LSE.	Offshore: No LSE.		Potential for connectivity to Project OAA on migration considered highly limited based on known broad migratory front, especially considering the limited number of individuals which make up the citation population. LSE can be ruled out.	No
		Merlin	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Hen harrier	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Golden eagle	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
C	Loch Flemington SPA	Slavonian grebe	No LSE.	Offshore: No LSE.		Potential for connectivity to Project OAA on migration considered highly limited based on known broad migratory front, especially considering the limited number of individuals which make up the citation population. LSE can be ruled out.	No
C	Forth Islands SPA	Lesser black-backed gull	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Gannet	Distributional responses; collision risk; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Sandwich tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Roseate tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Common tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Arctic tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Puffin	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Shag	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Seabird assemblage	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Kittiwake (CoSA)	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Herring gull (CoSA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season only.	Yes
		Guillemot (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Razorbill (CoSA)	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season only.	Yes
		Cormorant (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
C	Copinsay SPA	Seabird assemblage	Distributional responses; collision risk; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Kittiwake (CoSA)	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Great black-backed gull (CoSA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season.	Yes
		Guillemot (CoSA)	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	No
C	Hoy SPA	Great skua	Collision risk; in-combination.	Offshore: Criterion 2 (breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the breeding season.	Yes
		Red-throated diver	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Peregrine	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Seabird assemblage	Distributional responses; collision risk; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Kittiwake (CoSA)	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Great black-backed gull (CoSA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season only.	Yes

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
C	Auskerry SPA	Arctic tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Storm-petrel	No LSE.	Offshore: No LSE.		Limited connectivity to the Project OAA and no species sensitivity to impact pathways identified. No LSE concluded.	No
C	St. Abb's Head to Fast Castle SPA	Seabird assemblage	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Kittiwake (CoSA)	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season.	Yes
		Herring gull (CoSA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season.	Yes
		Guillemot	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Razorbill (CoSA)	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season.	Yes
C	Fair Isle SPA	Arctic tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Guillemot	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Fair Isle wren	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Seabird assemblage	Distributional responses; collision risk; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Kittiwake (CoSA)	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Herring gull (CoSA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season.	Yes
		Great skua (CoSA)	Collision risk; in-combination.	Offshore: Criterion 2 (breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the breeding season.	Yes
		Arctic skua (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Razorbill (CoSA)	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Puffin (CoSA)	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Gannet (CoSA)	Distributional responses; collision risk; entanglement in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Shag (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Fulmar (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
C	Calf of Eday SPA	Seabird assemblage	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Kittiwake (CoSA)	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Great black-backed gull (CoSA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season only.	Yes
		Fulmar (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
		Cormorant (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
C	Rousay SPA	Arctic tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Seabird assemblage	Distributional responses; Collision risk; In-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Kittiwake (CoSA)	Distributional responses; Collision risk; In-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Arctic skua (CoSA)	No connectivity	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Guillemot (CoSA)	No connectivity	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Fulmar (CoSA)	No LSE	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
C	Marwick Head SPA	Guillemot	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Seabird assemblage	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Kittiwake (CoSA)	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
C	West Westray SPA	Arctic tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Guillemot	No connectivity.	Offshore: N/A		No connectivity to Project OAA, therefore no pathway for effect.	No
		Seabird assemblage	Distributional responses; collision risk; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Kittiwake (CoSA)	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Arctic skua (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Razorbill (CoSA)	Distributional responses; Entanglement In-combination.	Offshore: Criterion 2 (non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season only.	Yes
		Fulmar (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
C	Farne Islands SPA	Sandwich tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Roseate tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Common tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Arctic tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Guillemot	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Seabird assemblage	Distributional responses; collision risk; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Kittiwake (CoSA)	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Puffin (CoSA)	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season only.	Yes
		Shag (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
C	Cape Wrath SPA	Seabird assemblage	No LSE.	Offshore: No LSE.		No LSE has been concluded for components of the seabird assemblage. Therefore, no LSE concluded for the seabird assemblage.	No
		Kittiwake (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project area highly limited due to significant land barriers in the breeding season and limited proportion (1%) of the SPA population known to remain in the North Sea during the non-breeding. Therefore, any effect is likely to be immaterial. No LSE concluded.	No
		Guillemot (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Razorbill (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project area highly limited due to limited proportion (2%) of the SPA population known to remain in the North Sea during the non-	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
						breeding. Therefore, any effect is likely to be immaterial. No LSE concluded.	
		Puffin (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project area highly limited due to significant land barriers in the breeding season and limited proportion (0.1%) of the SPA population known to remain in the North Sea during the non-breeding. Therefore, any effect is likely to be immaterial. No LSE concluded.	No
C	Sumburgh Head SPA	Arctic tern	No connectivity	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Seabird assemblage	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Kittiwake (CoSA)	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Guillemot (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Fulmar (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
C	Handa SPA	Guillemot	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Razorbill	No LSE.	Offshore: No LSE.		Connectivity to the Project area highly limited due to limited proportion (2%) of the SPA population known to remain in the North Sea during the non-breeding. Therefore, any effect is likely to be immaterial. No LSE concluded.	No
		Seabird assemblage	Collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Kittiwake (CoSA)	Collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Great skua (CoSA)	Collision risk; In-combination.	Offshore: Criterion 2 (breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the breeding season only.	Yes
		Fulmar (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
C	Sule Skerry and Sule Stack SPA	Puffin	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the breeding season only.	Yes
		Storm-petrel	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
		Leach's storm-petrel	No LSE	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
		Seabird assemblage	Distributional responses; in-combination.	Offshore: Criterion 2 (breeding season only).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Gannet	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Guillemot (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Shag (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
C	Mousa SPA	Arctic tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Storm petrel	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
C	Noss SPA	Great skua	Collision risk; in-combination.	Offshore: Criterion 2 (breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the breeding season.	Yes
		Guillemot	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Gannet	Distributional responses; collision risk; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Seabird assemblage	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Kittiwake (CoSA)	Distributional responses; collision risk; in-combination	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Puffin (CoSA)	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Fulmar (CoSA)	No LSE.	Offshore: N/A.		Limited connectivity to the Project OAA and no species sensitivity to impact pathways identified. No LSE concluded.	No
C	Foula SPA	Arctic tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Great skua	Collision risk; in-combination.	Offshore: 2 (breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the breeding season only.	Yes
		Guillemot	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Puffin	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Red-throated diver	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Leach's storm-petrel	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
		Shag	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Seabird assemblage	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Kittiwake (CoSA)	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Arctic skua (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Razorbill (CoSA)	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season only.	Yes
		Fulmar (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
C	Shiant Isles SPA	Greenland barnacle goose	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Razorbill	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Puffin	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Shag	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Seabird assemblage	No LSE.	Offshore: No LSE.		No LSE has been concluded for components of the seabird assemblage. Therefore, no LSE concluded for the seabird assemblage.	No
		Kittiwake (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Guillemot (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Fulmar (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
C	North Rona and Sula Sgeir SPA	Guillemot	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Storm-petrel	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
		Leach's storm-petrel	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
		Gannet	No connectivity	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Seabird assemblage	No LSE.	Offshore: No LSE.		No LSE has been concluded for components of the seabird assemblage. Therefore, no LSE concluded for the seabird assemblage.	No
		Kittiwake (CoSA)	No connectivity	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Great black-backed gull (CoSA)	No connectivity	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Razorbill (CoSA)	No connectivity	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Puffin (CoSA)	No connectivity	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Fulmar	No LSE	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
C	Fetlar SPA	Arctic tern	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Great skua	Collision risk with turbines; in-combination.	Offshore: Criterion 2 (breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the breeding season only.	Yes
		Whimbrel	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Dunlin	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Red-necked phalarope	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Seabird assemblage	No connectivity.	Offshore: N/A.		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	No
		Arctic skua (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Fulmar (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
C	Hermaness, Saxa Vord and Valla Field SPA	Great skua	Collision risk; in-combination.	Offshore: Criterion 2 (breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the breeding season only.	Yes
		Puffin	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season only.	Yes
		Red-throated diver	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Gannet	Distributional responses; collision risk; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Seabird assemblage	Distributional responses; collision risk; entanglement; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Kittiwake (CoSA)	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (breeding and non-breeding season).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during both the breeding and non-breeding seasons.	Yes
		Guillemot (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Shag (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Fulmar (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
C	Flannan Isles SPA	Leach's storm-petrel	No LSE	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
		Seabird assemblage	No LSE.	Offshore: No LSE.		No LSE has been concluded for components of the seabird assemblage. Therefore, no LSE concluded for the seabird assemblage.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Kittiwake (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Guillemot (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Razorbill (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Puffin (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Fulmar (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
C	Flamborough and Filey Coast SPA	Kittiwake	Distributional responses; collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season only.	Yes
		Guillemot	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Razorbill	Distributional responses; entanglement; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season only.	Yes
		Gannet	Distributional responses; collision; entanglement; in-combination.	Offshore: Criterion 2 (non-breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season only.	Yes
		Seabird assemblage	Distributional responses; collision risk; entanglement; in-combination.	Offshore: Criterion 2 (non-breeding season only).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Herring gull (CoSA)	Collision risk; in-combination.	Offshore: Criterion 2 (non-breeding season only). Criterion 4.		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the non-breeding season only.	Yes
		Puffin (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Fulmar (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
		Shag (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Cormorant (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
C	St Kilda SPA	Great skua	Collision risk; in-combination.	Offshore: Criterion 2 (breeding season only).		Connectivity to the Project OAA and species sensitivity to impact pathways identified. Potential for LSE during the breeding season only.	Yes
		Storm-petrel	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Leach's storm-petrel	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
		Puffin	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Gannet	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Seabird assemblage	Collision risk.	Offshore: Criterion 2 (breeding season only).		LSE has been concluded for components of the seabird assemblage. Therefore, LSE concluded for the seabird assemblage.	Yes
		Kittiwake (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Guillemot (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Razorbill (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

Matrix Appendix	Designated site	Qualifying feature(s)	Potential effect pathway to LSE	Zone of Influence	Designated site overlap with ZOI	Screening rationale	Potential for LSE
		Fulmar (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
		Manx shearwater (CoSA)	No LSE.	Offshore: No LSE.		Manx shearwater recorded in very low numbers across the 24 months of DAS, therefore any level of impact apportioned to the feature would almost certainly be non-material, especially considering species insensitivity to impact pathways from offshore wind farms. No LSE concluded.	No
C	Mingulay and Berneray SPA	Razorbill	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Seabird assemblage	No LSE.	Offshore: No LSE.		No LSE has been concluded for components of the seabird assemblage. Therefore, no LSE concluded for the seabird assemblage.	No
		Kittiwake (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Guillemot (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Puffin (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No
		Fulmar (CoSA)	No LSE.	Offshore: No LSE.		Connectivity to the Project OAA, however species concluded as insensitive to impact pathways identified. No LSE concluded.	No
		Shag (CoSA)	No connectivity.	Offshore: N/A.		No connectivity to Project OAA, therefore no pathway for effect.	No

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10 Abbreviations and Glossary

10.1 Abbreviations

Acronym	Definition
AA	Appropriate Assessment
AC	Alternating Current
BTO	British Trust for Ornithology
CI	Confidence interval
CJEU	Court of Justice of the European Union
CoSA	Component of Seabird Assemblage
CoWA	Component of Waterbird Assemblage
cSAC	candidate SAC
CV	coefficient of variance
DAS	Digital Aerial Survey
DC	Direct Current
EC	European Council
ECC	Export cable corridor
EEC	European Economic Community
EIA	Environmental Impact Assessment
EIA Report	Environmental Impact Assessment Report
EU	European Union
FCS	Favourable Conservation Status
GB	Great Britain
GW	gigawatts
ha	hectares
HDD	Horizontal Direction Drilling

Acronym	Definition
HND	Holistic Network Design
HND FUE	Holistic Network Design Follow Up Exercise
HRA	Habitats Regulations Appraisal
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IAMMWG	Inter-Agency Marine Mammal Working Group
INTOG	Innovation and Targeted Oil and Gas
IPR	Iterative Plan Review
IROPI	Imperative Reasons of Overriding Public Interest
km	kilometre
kV	kilovolt
LSE	Likely Significant Effect
m	metre
MD-LOT	Marine Directorate Licensing and Operations Team
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MM	Mean Maximum
MM+SD	Mean Maximum plus one Standard Deviation
MPA	Marine Protected Area
MSS	Marine Scotland Science
MU	Management Unit
MW	megawatts
NW	north west
NE7	Northeast 7
NESBReC	North-east Scotland Biological Records Centre

Acronym	Definition
NETS	National Electricity Transmission System
NEWS	Non-estuarine Waterbird Survey
NGESO	National Grid Electricity System Operator Limited
NGESO HND	National Grid Electricity System Operator's Holistic Network Design
nm	nautical miles
NPF4	National Planning Policy Framework 4
O&M	Operation and Maintenance
OAA	Option Agreement Area
OSPAR	Oslo and Paris Convention for the Protection of the Marine Environment
pSAC	possible SAC
pSPA	potential SPA
RCP	Reactive Compensation Platform
RIAA	Report to Inform Appropriate Assessment
SA	Sustainability Appraisal
SAC	Special Area of Conservation
SCANS	Small Cetaceans in European Atlantic waters and the North Sea
SCI	Sites of Community Importance
SCOS	Special Committee on Seals
SD	Standard Deviation
Shell	Shell New Energies Holding Limited
SMA	Seal Management Area
SMP	Sectoral Marine Plan
SNCB	Statutory Nature Conservation Body
SOC	Scottish Ornithologists' Club
SPA	Special Protection Area

Acronym	Definition
SPR	ScottishPower Renewables (UK) Limited
SSEN	Scottish and Southern Electricity Networks
SW	South West
UK	United Kingdom
UXO	Unexploded ordnance
WeBS	Wetland Bird Survey
WTG	Wind Turbine Generators
WWT	Wildfowl & Wetlands Trust
ZOI	Zone of Influence

10.2 Glossary

Term	Definition
Aberdeenshire Council	One of 32 divisions of Scotland, designated as a Council area for the purposes of local government, covering Aberdeenshire.
Annex I (of the Habitats Directive)	Part of the Habitats Directive 92/43/EEC that identified habitat types that required conservation through the designation of Special Areas of Conservation (SACs).
Annex II (of the Habitats Directive)	Part of the Habitats Directive 92/43/EEC that identified species that required conservation through the designation of SACs.
Appropriate Assessment (AA)	An assessment to determine the implications of a plan or project on relevant national site network sites in view of that site's conservation objectives. An Appropriate Assessment forms part of the Habitats Regulations Appraisal (HRA) and is required when a plan or project (either alone or in-combination with other plans or projects) is likely to have a significant effect on a national site network. Where there are adverse impacts, it also includes an assessment of the potential mitigation for those impacts.
Connectivity	The association of processes or pathways by which a proposal may influence the qualifying interests of a Designated site. In HRA, this commonly relates to mobile qualifying feature species that use a spatial location or habitat beyond the boundary of a Designated site.
Designated site	Designated sites are those that are designated through the Habitats Directive and Birds Directive (via national legislation as appropriate). Within Scotland, additional sites designated through international convention are given the same protection through policy – overall all of these are referred to as Designated sites. Designated sites in Scotland are considered to be SPAs, SACs, candidate SACs and Sites of Community Importance (SCI). Potential SPAs (pSPA), possible SACs (pSACs), Ramsar sites (designated under international convention) and proposed Ramsar sites.
Environmental Impact Assessment Report (EIA Report)	In Scotland the outcome of the Environmental Impact Assessment (EIA) process is reported within a document called an EIA Report.
European Commission (EC)	The European Union's (EU's) politically independent executive division. It is responsible for preparing proposals for new European legislation, and it implements the decisions of the European Parliament and the Council of the EU.
Export Cable Corridor (ECC)	The broad linear area through seabed (seaward of MHWS) and land (landward of MHWS) connecting the Project OAA offshore to the proposed substation onshore, and within which electrical export cables will be located.

Term	Definition
Habitats Regulations Appraisal (HRA)	The assessment of the impacts of implementing a plan or policy on a Designated site, the purpose being to consider, via appropriate assessment, the impacts of a project against conservation objectives of the site and to ascertain whether it would adversely affect the integrity of the site.
Habitats Regulations	The Habitats Directive (Directive 92/43/ECC) and the Wild Birds Directive (Directive 2009/147/EC) were transposed into Scottish Law by the Conservation (Natural Habitats &c) Regulations 1994 ('Habitats Regulations') (up to 12 nm); by the Conservation of Offshore Marine Habitats and Species Regulations 2017 ('Offshore Marine Regulations') (beyond 12 nm); the Conservation of Habitats and Species Regulations 2017 (of relevance to consents under Section 36 of the Electricity Act 1989); the Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001; and the Wildlife and Countryside Act 1981. The Habitats Regulations set out the stages of the Habitats Regulations Appraisal (HRA) process required to assess the potential impacts of a proposed project on Designated sites (Special Areas of Conservation, Special Protection Areas, candidate SACs and SPAs and Ramsar Sites).
Horizontal Directional Drill (HDD)	An engineering technique for laying cables that avoids open trenches by drilling between two locations beneath the ground's surface.
Likely Significant Effects	Likely Significant Effects are those effects that have a pathway between a plan or project and the Designated site; and that can affect the conservation objectives for the site's qualifying interests. If there are Likely Significant Effects, then the Habitats Regulations places a duty on 'Competent Authorities' to carry out an appropriate assessment of the plan or project prior to granting consent.
Marine Directorate – Licensing Operations Team (MD-LOT)	The regulator for processing and assisting the Scottish Ministers in determining marine licence applications in the Scottish inshore region (between 0 and 12nm) under the Marine (Scotland) Act 2010, and in the Scottish offshore region (between 12 and 200nm) in accordance with the Marine and Coastal Access Act 2009.
Mean Low Water Springs (MLWS)	The average throughout a year of the heights of two successive low waters during those periods of 24-hours (approximately once a fortnight) when the tidal range is greatest.
National Grid Electricity System Operator's Holistic Network Design (NGESO HND)	To provide a coordinated onshore and offshore design for a 2030 network to meet government objectives of connecting 40 GW of offshore wind in Great Britain by 2030, including 11GW in Scotland as well net zero by 2050 for GB and 2045 for Scotland. The HND aims to provide an economic, efficient, operable, sustainable and coordinated NETS including the onshore and offshore assets required to connect offshore wind and considering internal interconnectors.

Term	Definition
National Site Network	Since leaving the EU, Natura and European sites are now referred to as the National Site Network.
NatureScot	Formerly known as Scottish Natural Heritage, NatureScot is a public body and government advisor responsible for Scotland's natural heritage, in particular for its natural, genetic and scenic diversity.
Option Agreement	An agreement between two parties (the Crown Estate Scotland and the offshore wind farm developer in this case) to facilitate a future possible transaction concerning an asset at an agreed price and on an agreed date
Option Agreement Area (OAA)	Term for the wind farm site upon the seabed at a location specified in the Option Agreement between the Crown Estate Scotland and a developer. It is the agreement that allows the developer the rights to undertake such tests, survey and site investigations that do not entail the temporary or permanent installation of any works or structures on the seabed.
Ramsar site	Areas listed by the UK Government under the Convention on Wetlands of International Importance (the Ramsar Convention 1971).
Scoping Opinion	A Scoping Opinion is adopted by the Planning Authority and Scottish Ministers for a proposed project.
Scoping Report	A report that presents the findings of an initial stage in the Environmental Impact Assessment process.
Scottish Ministers	Representatives of the devolved government of Scotland.
ScottishPower Renewables UK Limited (SPR)	Part of the Iberdrola group and 50% shareholder in the MarramWind Limited Joint Venture company between SPR and Shell New Energies Holding Limited (Shell).
Site of Special Scientific Interest (SSSI)	Sites notified at the national level under the Nature Conservation (Scotland) Act 2004. They are a series of sites that are designated to protect the best examples of significant natural habitats and populations of species.
Special Area of Conservation (SAC)	International designation implemented under the Habitats Regulations for the protection of habitats and (non-bird) species. Sites designated to protect habitats and species in Annexes I and II of the Habitats Directive and sufficient habitat to be conserved to maintain favourable conservation status of designated features.
Special Protection Area (SPA)	Sites which have been classified under EU Directive (79/409/EEC) to protect habitats of migratory birds and certain threatened birds under the Birds Directive.

Term	Definition
Unexploded Ordnance (UXO)	Explosive weapons (e.g. bombs, shells, grenades, land mines, naval mines) that did not explode when they were employed or discarded and still pose a risk of detonation, potentially many decades later.
United Kingdom (UK)	The United Kingdom of Great Britain and Northern Ireland, comprising England, Scotland, Wales and Northern Ireland.
United Nations	The United Nations is an international organisation founded in 1945 to maintain global peace and security.
Zone of Influence (ZOI)	The area surrounding the Project within which likely significant effects could occur.

Appendix A Annex 1 Habitats Screening Matrix

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Habitats Regulations Appraisal Appendix A Annex I Habitats Screening Matrix MarramWind Offshore Wind Farm

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HRA Screening Matrix: Loch of Strathbeg Ramsar

Name of Designated Site	Loch of Strathbeg Ramsar											
EU Code	UK13041											
Distance to Project:	4.1 km											
Likely Effects of Project												
Effect	Direct permanent habitat loss			Physical disturbance and indirect loss of habitat			Pollution			In-combination		
Stage of Development	C ¹	O	D	C	O	D	C	O	D	C	O	D
Naturally eutrophic loch and dune slack	✗a ²	✗b	✗c	✗d	✗e	✗f	✗g	✗h	✗i	✗j	✗j	✗j

¹ Defined stages of development are Construction (C); Operation (O); and Decommissioning (D).

² Sequential letter referencing has been provided for each effect on a qualifying feature (used throughout the Screening Matrices), identifying whether a qualifying feature may be subject to Likely Significant Effects (LSE) ✓ or where an effect can be screened out ✗.

Evidence supporting conclusions

Direct permanent habitat loss

- *a The Loch of Strathbeg Ramsar is 4.1 km to the north-east of the Project boundary at its nearest point (in the marine environment) and 5.1 km to the north of the Project boundary (in the terrestrial environment). Given the distance between the onshore Project boundary and the qualifying habitat features within the Ramsar site, there will be no direct permanent habitat loss to the Ramsar, therefore a finding of no LSE is appropriate.
- *b The impacts during the operation phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.
- *c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Physical disturbance and indirect loss of habitat

- *d The Ramsar is 4.1 km to the north-east of the Project boundary at its nearest point (in the marine environment) and 5.1 km to the north of the Project boundary (in the terrestrial environment). Given the distance between the onshore Project boundary and the qualifying habitat features within the Ramsar site, there will be no physical disturbance and/or indirect loss to qualifying habitat features within the Ramsar, therefore a finding of no LSE is appropriate.
- *e The impacts during the operation phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.
- *f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Pollution

- *g The Ramsar is 4.1 km to the north-east of the Project boundary at its nearest point (in the marine environment) and 5.1 km to the north of the Project boundary (in the terrestrial environment). Given the distance between the onshore Project boundary and the lack of hydrological connectivity between the qualifying habitat features within the Ramsar site, there are no onshore pollution pathways to the Ramsar, therefore a finding of no LSE is appropriate.
- *h The impacts during the operation phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

- ✕i The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

In-combination

- ✕j Given that no effect pathways to LSE exists for qualifying habitat features within the Ramsar, the potential for in-combination effects with other plans and projects can be ruled out.

HRA Screening Matrix: Buchan Ness and Collieston Coast SAC

Name of Designated Site	Buchan Ness and Collieston Coast SAC								
EU Code	UK0030101								
Distance to Project:	850m								
Likely Effects of Project									
Effect	Direct permanent habitat loss			Physical disturbance and indirect loss of habitat			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Vegetated sea cliffs of the Atlantic and Baltic coasts	✕a	✕b	✕c	✕d	✕e	✕f	✕g	✕h	✕i

Evidence supporting conclusions

Direct temporary habitat loss

- *a The SAC is 850m to the south-west of the Project boundary at its nearest point (in the marine environment) and 1.7 km to the south of the Project boundary (in the terrestrial environment). Therefore, no LSE is considered.
- *b The impacts during the operation phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

- *c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Physical disturbance and indirect loss of habitat

- *d The SAC is 850m to the south-west of the Project boundary at its nearest point (in the marine environment) and 1.7 km to the south of the Project boundary (in the terrestrial environment). Therefore, no LSE is considered.
- *e The impacts during the operation phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.
- *f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

In-combination

- *g On the basis that the construction phase will be both spatially and temporally restricted within the Project boundary, the potential for any in-combination effect with other coastal developments can be considered unlikely. This, in conjunction with no LSE for predicted for either habitat loss or physical disturbance, no LSE is concluded for in-combination effects.
- *h The impacts during the operation phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.
- *i The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

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Appendix B Marine Mammals Screening Matrix

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Habitats Regulations Appraisal Screening Report Appendix B Marine Mammals Screening Matrix MarramWind Offshore Wind Farm

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HRA Screening Matrix: Moray Firth SAC

Name of Designated Site	Moray Firth SAC																	
EU Code	UK0019808																	
Distance to Project	120km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Direct disturbance and displacement			Collision risk			Indirect impacts due to effects on prey species and habitats			Barrier effects			In-combination		
Stage of Development	C ¹	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Bottlenose dolphin	✕a ²	✕a	✕a	✓b	✕c	✕d	✓e	✓e	✓e	✓f	✓f	✓f	✓g	✓g	✕h	✓i	✓i	✓i

¹ Defined stages of development are Construction (C); Operation (O); and Decommissioning (D).

² Sequential letter referencing has been provided for each effect on a qualifying feature (used throughout the Screening Matrices), identifying whether a qualifying feature may be subject to Likely Significant Effects (LSE) ✓ or where an effect can be screened out *.

Evidence supporting conclusions

Direct habitat loss

- ✖a The Project area does not overlap with the SAC, therefore there is no potential for temporary loss of habitat for the designated feature of the SAC during the construction phase. No LSE identified.

Direct disturbance and displacement

- ✓b Depending on noise propagation, construction works have the potential to propagate into the SAC and disturb the designated feature. The distance to the site means there is little to no chance of permanent threshold shift. Construction activities are considered to cause less of a disturbance and displacement effect for floating sites over monopile sites, due to the difference in installation methods; however, monopiles may still be required for substations. Therefore, there is potential for LSE.
- ✖c Noise associated with the operation of a floating windfarm is typically below the dominant hearing sensitivity of bottlenose dolphin and noise propagation is thought to be localised to the site. Therefore, there is no potential for direct disturbance or displacement for the designated feature of the SAC during the operation phase. No LSE identified.
- ✖d A decommissioning plan and programme will be developed prior to construction. If substructures are not left in situ, the removal process is likely to include use of a remotely operated vehicle (ROV) and a range of cutting and drilling tools. Therefore, due to the distance of the Project area to the SAC, and localised nature of the associated non-impulsive noise from the associated activities there is no potential for direct disturbance or displacement for the designated feature of the SAC. Therefore, no LSE identified.

Collision risk

- ✓e Designated features have the potential to collide with construction and maintenance vessels. Therefore, there is potential for LSE.

Indirect impacts due to effects on prey species and habitats

- ✓f Considering the proximity to the designated feature of the SAC and receptor foraging ranges, LSE cannot be excluded at this stage.

Barrier effects

- ✓g During the construction, and operation and maintenance phase, underwater noise emissions associated with anchor or pile installation or mooring line 'pinging' (sudden re-tensioning of mooring lines which makes a snap or ping sound), maintenance and monitoring surveys, and vessel noise have the potential to barrier effects to marine mammal receptors.
- ×h A decommissioning plan and programme will be developed prior to construction. If substructures are not left in situ, the removal process is likely to include the use of a ROV and a range of cutting and drilling tools. Therefore, due to the distance of the Project area to the SAC, and localised nature of the associated non-impulsive noise from the associated activities there is no potential for barrier effects for the designated feature of the SAC. Therefore, no LSE identified.

In-combination

- ✓i Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

HRA Screening Matrix: Dornoch Firth and Morrich More SAC

Name of Designated Site	Dornoch Firth and Morrich More SAC																	
EU Code	UK0019806																	
Distance to Project	150km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Direct disturbance and displacement			Collision risk			Indirect impacts due to effects on prey species and habitats			Barrier effects			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Harbour seal	✖a	✖a	✖a	✖a	✖a	✖a	✖a	✖a	✖a	✖a	✖a	✖a	✖a	✖a	✖a	✖a	✖a	✖a

Evidence supporting conclusions

*a The Project area does not overlap with the SAC, nor does it fall within the ZoI for this development. Therefore, no LSE identified.

HRA Screening Matrix: Sanday SAC

Name of Designated Site	Sanday SAC																	
EU Code	UK0030069																	
Distance to Project	170km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Direct disturbance and displacement			Collision risk			Indirect impacts due to effects on prey species and habitats			Barrier effects			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Harbour seal	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa

Evidence supporting conclusions

*a The Project area does not overlap with the SAC, nor does it fall within the ZoI for this development. Therefore, no LSE identified.

HRA Screening Matrix: Isle of May SAC

Name of Designated Site	Isle of May SAC																	
EU Code	UK0030172																	
Distance to Project	185km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Direct disturbance and displacement			Collision risk			Indirect impacts due to effects on prey species and habitats			Barrier effects			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Grey seal	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa

Evidence supporting conclusions

*a The Project area does not overlap with the SAC, nor does it fall within the ZoI for this development. Therefore, no LSE identified.

HRA Screening Matrix: Firth of Tay and Eden SAC

Name of Designated Site	Firth of Tay and Eden SAC																	
EU Code	UK0030311																	
Distance to Project	165km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Direct disturbance and displacement			Collision risk			Indirect impacts due to effects on prey species and habitats			Barrier effects			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Harbour seal	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa

Evidence supporting conclusions

*a The Project area does not overlap with the SAC, nor does it fall within the ZoI for this development. Therefore, no LSE identified.

HRA Screening Matrix: Faray and Holm of Faray SAC

Name of Designated Site	Faray and Holm of Faray SAC																	
EU Code	UK0017096																	
Distance to Project	185km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Direct disturbance and displacement			Collision risk			Indirect impacts due to effects on prey species and habitats			Barrier effects			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Grey seal	✗a	✗a	✗a	✗a	✗a	✗a	✗a	✗a	✗a	✗a	✗a	✗a	✗a	✗a	✗a	✗a	✗a	✗a

Evidence supporting conclusions

*a The Project area does not overlap with the SAC, nor does it fall within the ZoI for this development. Therefore, no LSE identified.

HRA Screening Matrix: Berwickshire and North Northumberland Coast SAC

Name of Designated Site	Berwickshire and North Northumberland Coast SAC																	
EU Code	UK0017072																	
Distance to Project	205km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Direct disturbance and displacement			Collision risk			Indirect impacts due to effects on prey species and habitats			Barrier effects			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Grey seal	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa

Evidence supporting conclusions

*a The Project area does not overlap with the SAC, nor does it fall within the ZoI for this development. Therefore, no LSE identified.

HRA Screening Matrix: Southern North Sea SAC

Name of Designated Site	Southern North Sea SAC																	
EU Code	UK0030395																	
Distance to Project	280km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Direct disturbance and displacement			Collision risk			Indirect impacts due to effects on prey species and habitats			Barrier effects			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Harbour porpoise	x	a	x	a	x	a	x	a	x	a	x	a	x	a	x	a	x	a

Evidence supporting conclusions

- *a The Project area does not overlap with the SAC, nor does it fall within the ZOI for this development. The main conservation objective of this SAC is to conserve site integrity and the Project area is located too far away to have any effect on the site. Therefore, no LSE identified.

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Appendix C Ornithological Features Screening Matrix

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Habitat Regulations Appraisal Screening Report Appendix C Ornithological Features Screening Matrix MarramWind Offshore Wind Farm

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Introduction

This Technical Appendix presents the screening matrices to justify the Project's screening conclusions presented within the Habitats Regulations Appraisal (HRA) Screening Report for ornithological features.

For ornithological features, there is potential for connectivity and potential impact with Project infrastructure and proposed works located within the onshore, intertidal and offshore environments. The separation of the three environments is as follows:

- The onshore environment considers birds occurring landward above Mean High Water Springs (MHWS).
- The intertidal environment considers birds occurring on land that is exposed between the Mean Low Water Springs (MLWS) mark and MHWS.
- The offshore environment considers birds using the water (both on and below) and the air above that water seaward of the MHWS.

The terms onshore, intertidal and offshore refer to environments within which both the Project infrastructure and ornithological features may reside, rather than a specific set of receptors. As a result, some species (such as gulls and terns) may occur in multiple environments, though the impact pathways within the environments may differ. For this reason, the matrices presented have been separated out by environment rather than by Designated site. This means in some instances (for example Buchan Ness to Collieston Coast Special Protected Area (SPA)) the same Designated site may have multiple matrices.

Offshore Ornithology Screening Matrices

With respect to all Designated sites considered for offshore ornithology the potential for a Likely Significant Effect (LSE) has been assessed against the following conservation objectives:

- To avoid deterioration of the habitats of the qualifying species (listed below) 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.
 - No significant disturbance of the species.

Offshore Ornithology HRA Screening Matrix: Buchan Ness to Collieston Coast SPA

Name of Designated Site				Buchan Ness to Collieston Coast SPA														
EU Code				UK9002491														
Distance to Project				Export cable corridor overlaps Project Boundary & 81.99km to Option Agreement Area (OAA)														
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C ¹	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Seabird assemblage (breeding)	✓a ²	✕b	✓c	✕e	✓f	✕g		✓m		✕r	✕r	✕r		✓t		✕v	✓w	✕v
Kittiwake (breeding, CoSA)	✓a	✕b	✓c	✕e	✓h	✕g		✓n		✕s	✕s	✕s		✕u		✕v	✓w	✕v
Herring gull (breeding, CoSA)	✓a	✕b	✓c	✕e	✕i	✕g		✓o		✕s	✕s	✕s		✕u		✕v	✓w	✕v
Guillemot (breeding, CoSA)	✓a	✕b	✓c	✕e	✓j	✕g		✕p		✕s	✕s	✕s		✓t		✕v	✓w	✕v
Fulmar (breeding, CoSA)	✓a	✕b	✓c	✕e	✕k	✕g		✕p		✕s	✕s	✕s		✕u		✕v	✕v	✕v
Shag (breeding, CoSA)	✓a	✕d	✓c	✕e	✕l	✕g		✕q		✕s	✕s	✕s		✕u		✕v	✕v	✕v

Evidence supporting conclusions

Direct habitat loss

- ✓a. The southernmost export cable corridor Landfall option passes through the SPA therefore there is potential for temporary loss of habitat for all features of the SPA during the construction phase. LSE cannot be excluded for any feature for this impact pathway during this phase of the Project.
- ✕b. During the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 82 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the

¹ Defined stages of development are Construction (C); Operation (O); and Decommissioning (D).
² Sequential letter referencing has been provided for each effect on a qualifying feature (used throughout the Screening Matrices), identifying whether for each qualifying feature a Likely Significant Effect (LSE) cannot be ruled out ✓ or where an effect can be screened out ✕.

- very small footprint of habitat loss during the operational phase, the foraging ranges of kittiwake, herring gull, guillemot and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, an LSE can be excluded for these features in both the breeding and non-breeding seasons.
- ✓c. The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of LSE is appropriate.
 - *d. Shag was not recorded within the 24 months of site-specific DAS within the OAA, therefore there is no potential connectivity and LSE can be ruled out.

Distributional responses

- *e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, an LSE can be ruled out.
- ✓f LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- *g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- ✓h. The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023), which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- *i Species identified as showing weak attraction / no distributional response to the presence of offshore wind farms (Dierschke et al. 2016), therefore, species can be considered not sensitive during operational and maintenance activities. Therefore, LSE can be ruled out for disturbance and displacement.
- ✓j Species classified as having moderate sensitivity to operation and maintenance disturbance and displacement activities (Bradbury et al. 2014). LSE identified during both breeding and non-breeding seasons for disturbance and displacement.
- *k Fulmar is classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019; NatureScot, 2023). Therefore, the displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season, connectivity is limited due to mixing of wider North Sea populations and, therefore, any effect is likely to be immaterial. Therefore, LSE can be ruled out for disturbance and displacement.
- *l Shag was not recorded within the 24 months of site-specific DAS within the OAA, therefore no potential connectivity.

Collision risk

- ✓m LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✓n Species recorded during site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE concluded.
- ✓o OAA located outwith of the species mean max plus one SD foraging range. Therefore, no connectivity during the breeding season. During the non-breeding season, connectivity is limited due to the mixing of wider North Sea populations and, therefore, any effect is likely to be immaterial. However, given the numbers recorded during the site-specific surveys (a peak abundance estimate of 73 in November 2022 (APEM, 2023)), this species has been screened in on a precautionary basis. Potential for LSE concluded.
- *p A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE concluded.
- *q Shag was not recorded within the 24 months of site-specific DAS within the OAA, therefore no potential connectivity.

Indirect impacts due to effects on prey species and habitats

- *r No LSE concluded for components of the seabird assemblage, therefore LSE not concluded for the seabird assemblage.

✖s Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and invasive and non-native species (INNS). Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

Entanglement

- ✔t Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.
- ✖u For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- ✖v No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔w Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Loch of Strathbeg SPA / Ramsar

Name of Designated Site	Loch of Strathbeg SPA / Ramsar																	
EU Code	UK9002211																	
Distance to Project	76.70km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Svalbard barnacle goose (non-breeding)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Greylag goose (non-breeding) ³																		
Pink-footed goose (non-breeding) ³																		
Whooper swan (non-breeding) ³																		
Sandwich tern (breeding) ⁴																		
Waterfowl assemblage (non-breeding)	*a	*a	*a	*b	*b	*b		✓d		*e	*e	*e		*f		*g	✓h	*g
Teal (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Goldeneye (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g

Evidence supporting conclusions

Direct habitat loss

*a For migratory waterbird features, there is no pathway for effect as these features are unlikely to use the marine environment of the Project area for roosting and / or foraging. Birds flying through the Project area on migration would be unaffected by habitat loss. LSE can therefore be excluded for these features for all phases of the Project.

³ No connectivity concluded based on features likely migratory route suggested in Woodward et al., (2023).
⁴ No connectivity concluded based on features behaviour to track the coast on migration up to a maximum of 60km offshore (WWT Consulting, 2014).

Distributional responses

- *b Migratory waterbirds are unlikely to be affected by disturbance / displacement effects during migration movements, as they do not interact with the marine environment around the Project. As such, LSE can be excluded for these features for all phases of the Project.

Collision risk

- ✓c There is potential for collision with WTGs for migratory waterbirds during migration flights, given that these features may migrate through the OAA within the ‘at risk’ height range (i.e. within the rotor swept area) whilst on passage. LSE cannot be excluded for these features.
- ✓d LSE concluded for components of the waterbird assemblage, therefore LSE concluded for the waterbird assemblage.

Indirect impacts due to effects on prey species and habitats

- *e Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

Entanglement

- *f Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

In-combination

- *g No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, and no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✓h Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Troup, Pennan and Lion's Head SPA

Name of Designated Site	Troup, Pennan and Lion’s Head SPA																	
EU Code	UK9002471																	
Distance to Project	88.79km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Guillemot (breeding)	*a	*b	*c	*e	✓f	*g		*l		*p	*p	*p		✓r		*t	✓u	*t
Seabird assemblage (breeding)	*a	*d	*c	*e	✓h	*g		✓m		*q	*q	*q		✓r		*t	✓u	*t
Kittiwake (breeding, CoSA)	*a	*b	*c	*e	✓i	*g		✓n		*p	*p	*p		*s		*t	✓u	*t
Herring gull (breeding, CoSA)	*a	*b	*c	*e	*j	*g		✓o		*p	*p	*p		*s		*t	✓u	*t
Razorbill (breeding, CoSA)	*a	*b	*c	*e	✓f	*g		*m		*p	*p	*p		✓r		*t	✓u	*t
Fulmar (breeding, CoSA)	*a	*b	*c	*e	*k	*g		*m		*p	*p	*p		*s		*t	*t	*t

Evidence supporting conclusions

Direct habitat loss

- *aDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on breeding guillemot, kittiwake, herring gull, razorbill and fulmar given the distance between the colony and the Project footprint. The foraging range of guillemot, kittiwake, herring gull, razorbill and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *bDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures and therefore, access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 89 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of guillemot, kittiwake, herring gull, razorbill and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- *cThe impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

✖d No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional responses

- ✖e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✔f Species classified as having moderate sensitivity to operation and maintenance disturbance and displacement activities (Bradbury et al. 2014) and is within the mean max plus one SD foraging range (Woodward et al. 2019) from the Project. Potential LSE identified for both the breeding and non-breeding seasons.
- ✖g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- ✔h LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔i The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westermost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- ✖j Species identified as showing weak attraction / no response to the presence of offshore wind farms (Dierschke et al. 2016), therefore, species can be considered not sensitive to operational and maintenance disturbance and displacement activities. Therefore, LSE can be ruled out.
- ✖k Fulmar classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore the displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- ✖l A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.
- ✔m LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔n Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE.
- ✔o OAA located outwith of herring gulls mean max plus one SD foraging range, therefore no connectivity during the breeding season. During the non-breeding season connectivity is limited due to mixing of wider North Sea populations and, therefore, any effect is likely to be immaterial. However, given the numbers recorded during the site-specific surveys (a peak abundance estimate of 73 in November 2022 (APEM, 2023)), this species has been screened in as a precaution. Potential for LSE concluded at this stage.

Indirect impacts due to effects on prey species and habitats

- ✖p Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result from displaced or reduced foraging resources. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.
- ✖q No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Entanglement

- ✓r

Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.
- ✖s

For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- ✖t

No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✓u

Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Ythan Estuary, Sands of Forvie and Meikle Loch SPA / RAMSAR

Name of Designated Site	Ythan Estuary, Sands of Forvie and Meikle Loch SPA																	
EU Code	UK9002221																	
Distance to Project	90.99km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Pink-footed goose (non-breeding) ⁵																		
Sandwich tern (breeding) ⁶																		
Common tern (breeding) ⁶																		
Little tern (breeding) ⁶																		
Waterbird assemblage (non-breeding)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Eider (non-breeding, CoWA) ⁷																		
Lapwing (non-breeding, CoWA)	*a	*a	*a	*b	*b	*b		✓d		*e	*e	*e		*f		*g	✓h	*g
Redshank (non-breeding, CoWA)	*a	*a	*a	*b	*b	*b		✓d		*e	*e	*e		*f		*g	✓h	*g

Evidence supporting conclusions

Direct habitat loss

*a For migratory waterbird features, there is no pathway for effect as these features are unlikely to use the Project marine area for roosting and / or foraging. Birds flying through the Project area on migration would be unaffected by habitat loss. LSE can therefore be excluded for these features for all phases of the Project.

⁵ No connectivity concluded based on features likely migratory route suggested in Woodward et al., (2023).
⁶ No connectivity concluded based on features behaviour to track the coast on migration up to a maximum of 60km offshore (WWT Consulting, 2014).
⁷ The project lies beyond the connectivity distance for this species. Therefore, no LSE is considered.

Distributional responses

- *b Migratory waterbirds are unlikely to be affected by disturbance / displacement effects during migration movements as they do not interact with the marine environment around the Project. As such, LSE can be excluded for these features for all phases of the Project.

Collision risk

- ✓c LSE concluded for components of the waterbird assemblage, therefore LSE concluded for the waterbird assemblage.
- ✓d There is potential for collision with WTGs for migratory waterbirds during migration flights, given that these features may migrate through the OAA within the ‘at risk’ height range (i.e. within the rotor swept area) whilst on passage. LSE cannot be excluded for these features.

Indirect impacts due to effects on prey species and habitats

- *e Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

Entanglement

- *f Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

In-combination

- *g No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, and no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✓h Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Moray Firth SPA

Name of Designated Site	Moray Firth SPA																	
EU Code	UK9020313																	
Distance to Project	116.74km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Great northern diver (non-breeding)	✖a	✖a	✖a	✖b	✖b	✖b		✓c		✖d	✖d	✖d		✖e		✖f	✓g	✖f
Red-throated diver (non-breeding) ⁸																		
Slavonian grebe (non-breeding)	✖a	✖a	✖a	✖b	✖b	✖b		✓c		✖d	✖d	✖d		✖e		✖f	✓g	✖f
Scaup (non-breeding) ⁹																		
Eider (non-breeding) ⁹																		
Long-tailed duck (non-breeding)	✖a	✖a	✖a	✖b	✖b	✖b		✓c		✖d	✖d	✖d		✖e		✖f	✓g	✖f
Common scoter (non-breeding)	✖a	✖a	✖a	✖b	✖b	✖b		✓c		✖d	✖d	✖d		✖e		✖f	✓g	✖f
Velvet scoter (non-breeding)	✖a	✖a	✖a	✖b	✖b	✖b		✓c		✖d	✖d	✖d		✖e		✖f	✓g	✖f
Goldeneye (non-breeding)	✖a	✖a	✖a	✖b	✖b	✖b		✓c		✖d	✖d	✖d		✖e		✖f	✓g	✖f
Red-breasted merganser (non-breeding)	✖a	✖a	✖a	✖b	✖b	✖b		✓c		✖d	✖d	✖d		✖e		✖f	✓g	✖f
Shag (breeding) ¹⁰																		

⁸ No connectivity concluded based on features likely migratory route suggested in Woodward et al., (2023).
⁹ The project lies beyond the connectivity distance for these species. Therefore, no LSE is considered.
¹⁰ Species considered to be largely sedentary therefore no potential connectivity to the Project.

Evidence supporting conclusions

Direct habitat loss

- ✖a For migratory waterbird features, there is no pathway for effect as these features are unlikely to use the Project marine area for roosting and / or foraging. Birds flying through the Project area on migration would be unaffected by habitat loss. LSE can therefore be excluded for these features for all phases of the Project.

Distributional responses

- ✖b Migratory waterbirds are unlikely to be affected by disturbance / displacement effects during migration movements, as they do not interact with the marine environment around the Project. As such, LSE can be excluded for these features for all phases of the Project.

Collision risk

- ✔c There is potential for collision with WTGs for migratory waterbirds during migration flights, given that these features may migrate through the OAA within the ‘at risk’ height range (i.e. within the rotor swept area) whilst on passage. LSE cannot be excluded for these features.

Indirect impacts due to effects on prey species and habitats

- ✖d Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

Entanglement

- ✖e Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

In-combination

- ✖f No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore, it would have no tangible contribution to any in-combination effect, and no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔g Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Loch of Skene SPA

Name of Designated Site	Loch of Skene SPA																	
EU Code	UK9002261																	
Distance to Project	132.83km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Greylag goose (non-breeding) ¹¹																		
Goldeneye (non-breeding)	✖a	✖a	✖a	✖b	✖b	✖b		✓c		✖d	✖d	✖d		✖e		✖f	✓g	✖f
Goosander (non-breeding)	✖a	✖a	✖a	✖b	✖b	✖b		✓c		✖d	✖d	✖d		✖e		✖f	✓g	✖f

Evidence supporting conclusions

Direct habitat loss

✖a For migratory waterbird features, there is no pathway for effect as these features are unlikely to use the Project marine area for roosting and / or foraging. Birds flying through the Project area on migration would be unaffected by habitat loss. LSE can therefore be excluded for these features for all phases of the Project.

Distributional responses

✖b Migratory waterbirds are unlikely to be affected by disturbance / displacement effects during migration movements, as they do not interact with the marine environment around the Project. As such, LSE can be excluded for these features for all phases of the Project.

Collision risk

✓c There is potential for collision with WTGs for migratory waterbirds during migration flights, given that these features may migrate through the OAA within the ‘at risk’ height range (i.e. within the rotor swept area) whilst on passage. LSE cannot be excluded for these features.

Indirect impacts due to effects on prey species and habitats

✖d Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

¹¹ No connectivity concluded based on features likely migratory route suggested in Woodward et al., (2023).

Entanglement

✖e Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

In-combination

✖f No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible and therefore it would have no tangible contribution to any in-combination effect, and no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

✔g Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Fowlsheugh SPA

Name of Designated Site	Fowlsheugh SPA																	
EU Code	UK9002271																	
Distance to Project	144.62km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Kittiwake (breeding)	*a	*b	*c	*e	✓f	*g		✓l		*p	*p	*p		*r		*t	✓u	*t
Guillemot (breeding) ¹²																		
Seabird assemblage (breeding)	*d	*d	*d	*e	✓h	*g		✓m		*q	*q	*q		✓s		*t	✓u	*t
Herring gull (breeding, CoSA)	*a	*b	*c	*e	*i	*g		✓n		*p	*p	*p		*r		*t	✓u	*t
Razorbill (breeding, CoSA)	*a	*b	*c	*e	✓j	*g		*o		*p	*p	*p		✓s		*t	✓u	*t
Fulmar (breeding, CoSA)	*a	*b	*c	*e	*k	*g		*o		*p	*p	*p		*r		*t	*t	*t

Evidence supporting conclusions

Direct habitat loss

- *aDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on breeding kittiwake, herring gull, razorbill and fulmar given the distance between the colony and the Project footprint. The foraging range of kittiwake, herring gull, razorbill and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *bDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures so access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 145 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the

¹² OAA lies outwith of the guillemot MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

- very small footprint of habitat loss during the operational phase, the foraging ranges of kittiwake, herring gull, razorbill and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- *c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
 - *d No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional responses

- *e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✓f The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023), which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- *g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- ✓h LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- *i Species identified as showing weak attraction / no response to the presence of offshore wind farms (Dierschke et al. 2016), therefore, species can be considered not sensitive to operational and maintenance disturbance and displacement activities. Therefore, LSE can be ruled out.
- ✓j Moderate sensitivity to disturbance and displacement from operation and maintenance activities (SNCBs, 2022) associated with the Project area, though potential for an effect only during non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). However, during the non-breeding season connectivity limited due to mixing of wider North Sea populations and, therefore, any effect is likely to be immaterial, though screened in on a precautionary basis
- *k Fulmar is classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore, the displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- ✓l Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE.
- ✓m LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✓n OAA located outwith of the species mean max plus one SD foraging range, therefore no connectivity during the breeding season. During the non-breeding season connectivity is limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial, especially considered the low numbers recorded during site-specific-surveys, though screened in on a precautionary basis.
- *o A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- *p Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result from displaced or reduced foraging resources. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.
- *q No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Entanglement

- *rFor surface feeding non-diving birds no LSE can be concluded based on no impact pathway.
- ✓sDirect entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.

In-combination

- *tNo potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✓uWhere potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: East Caithness Cliffs SPA

Name of Designated Site	East Caithness Cliffs SPA																	
EU Code	UK9001182																	
Distance to Project	131.5km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Kittiwake (breeding)	*a	*b	*c	*e	✓f	*g		✓l		*p	*p	*p		*r		*t	✓u	*t
Herring Gull (breeding)	*a	*b	*c	*e	*h	*g		✓m		*p	*p	*p		*r		*t	✓u	*t
Guillemot (breeding) ¹³																		
Razorbill (breeding)	*a	*b	*c	*e	✓i	*g		*n		*p	*p	*p		✓s		*t	✓u	*t
Shag (breeding) ¹⁴																		
Peregrine (breeding) ¹⁵																		
Seabird assemblage (breeding)	*a	*d	*c	*e	✓j	*g		✓o		*q	*q	*q		✓s		*t	✓u	*t
Great black-backed gull (breeding, CoSA)	*a	*b	*c	*e	*h	*g		✓m		*p	*p	*p		*r		*t	✓u	*t
Fulmar (breeding, CoSA)	*a	*b	*c	*e	*k	*g		*n		*p	*p	*p		*r		*t	*t	*t
Cormorant (breeding, CoSA) ¹³																		

¹³ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.
¹⁴ Species considered to be largely sedentary therefore no potential connectivity to the Project.
¹⁵ Non-seabird species with no connectivity to the OAA.

Evidence Supporting Conclusions

Direct habitat loss

- ✖a During the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on breeding kittiwake, herring gull, razorbill, great black-backed gull and fulmar given the distance between the colony and the Project footprint. The foraging range of kittiwake, herring gull, razorbill, great black-backed gull and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- ✖b During the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures so access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 132 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of kittiwake, herring gull, razorbill, great black-backed gull and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- ✖c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- ✖d No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional responses

- ✖e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✔f The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- ✖g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- ✖h Species identified as showing weak attraction / no response to the presence of offshore wind farms (Dierschke et al. 2016), therefore, species can be considered not sensitive to operational and maintenance disturbance and displacement activities. Therefore, LSE can be ruled out.
- ✔i Moderate sensitivity to disturbance and displacement from operation and maintenance activities (SNCBs, 2022) associated with the Project area, though potential for an effect only during non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). However, during the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial, though screened in on a precautionary basis.
- ✔j LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✖k Fulmar classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore the displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- ✔l Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE.
- ✔m Species known to fly at potential collision height (PCH; Johnston et al. 2014) though connectivity limited to the non-breeding season only due to site being outwith of the species foraging range. During the non-breeding season connectivity is limited due to mixing of wider North Sea populations and therefore any effect likely to be immaterial, especially considered the low numbers recorded during site-specific surveys, though screened in on a precautionary basis.

- ✖nA species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.
- ✔oLSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.

Indirect impacts due to effects on prey species and habitats

- ✖pPrey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result from displaced or reduced foraging resources. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.
- ✖qNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Entanglement

- ✖rFor surface feeding non-diving birds no LSE can be concluded based on no impact pathway.
- ✔sDirect entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.

In-combination

- ✖tNo potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔uWhere potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: North Caithness Cliffs SPA

Name of Designated Site	North Caithness Cliffs SPA																	
EU Code	UK9001181																	
Distance to Project	133.99km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Guillemot (breeding) ¹⁶																		
Peregrine (breeding) ¹⁷																		
Seabird assemblage (breeding)	*a	*b	*c	*e	✓f	*g		✓l		*o	*o	*o		✓q		*s	✓t	*s
Kittiwake (breeding, CoSA)	*a	*d	*c	*e	✓h	*g		✓m		*p	*p	*p		*r		*s	✓t	*s
Razorbill (breeding, CoSA)	*a	*d	*c	*e	✓i	*g		*n		*p	*p	*p		✓q		*s	✓t	*s
Puffin (breeding, CoSA)	*a	*d	*c	*e	✓j	*g		*n		*p	*p	*p		✓q		*s	✓t	*s
Fulmar (breeding, CoSA)	*a	*d	*c	*e	*k	*g		*n		*p	*p	*p		*r		*s	*s	*s

Evidence supporting conclusions

Direct habitat loss

- *aDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on kittiwake, razorbill, puffin, and fulmar given the distance between the colony and the Project footprint. The foraging range of kittiwake, razorbill, puffin, and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *bNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- *cThe impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

¹⁶ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.
¹⁷ Non-seabird species with no connectivity to the OAA.

✖d During the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 134 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of kittiwake, razorbill, puffin, and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.

Distributional responses

- ✖e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✔f LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✖g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- ✔h The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- ✔i Moderate sensitivity to disturbance and displacement from operation and maintenance activities (SNCBs, 2022) associated with the Project area, though potential for an effect only during non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). However, during the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial, though screened in on a precautionary basis.
- ✔j Species classified as having moderate sensitivity to operation and maintenance disturbance and displacement activities (SNCBs, 2022) and is within the mean max plus one SD foraging range (Woodward et al. 2019) from the Project. Potential LSE identified for both the breeding and non-breeding seasons.
- ✖k Fulmar is classified as having very low sensitivity to disturbance and displacement (SNCBs, 2022) and i known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019). Therefore, the displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision Risk

- ✔l LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔m Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE.
- ✖n A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- ✖o No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖p Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result from displaced or reduced foraging resources. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

Entanglement

- ✓q Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.
- ✕r For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- ✕s No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore, it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✓t Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Moray and Nairn Coast SPA

Name of Designated Site	Moray and Nairn Coast SPA																	
EU Code	UK9001625																	
Distance to Project	170.49km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Pink-footed goose (non-breeding) ¹⁸																		
Greylag goose (non-breeding) ¹⁸																		
Bar-tailed godwit (non-breeding)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Red-breasted merganser (non-breeding)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Wigeon (non-breeding)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Redshank (non-breeding)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Dunlin (non-breeding)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Oystercatcher (non-breeding)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Osprey (breeding) ¹⁹																		
Waterbird assemblage (non-breeding)	*a	*a	*a	*b	*b	*b		✓d		*e	*e	*e		*f		*g	✓h	*g

¹⁸ No connectivity concluded based on features likely migratory route suggested in Woodward et al., (2023).
¹⁹ Non-seabird species with no connectivity to the OAA.

Evidence supporting conclusions

Direct habitat loss

- ✖a For migratory waterbird features, there is no pathway for effect as these features are unlikely to use the Project marine area for roosting and / or foraging. Birds flying through the Project area on migration would be unaffected by habitat loss. LSE can therefore be excluded for these features for all phases of the Project.

Distributional responses

- ✖b Migratory waterbirds are unlikely to be affected by disturbance / displacement effects during migration movements, as they do not interact with the marine environment around the Project. As such, LSE can be excluded for these features for all phases of the Project.

Collision risk

- ✔c There is potential for collision with WTGs for migratory waterbirds during migration flights, given that these features may migrate through the OAA within the ‘at risk’ height range (i.e. within the rotor swept area) whilst on passage. LSE cannot be excluded for these features.
- ✔d LSE concluded for components of the waterbird assemblage, therefore LSE concluded for the waterbird assemblage.

Indirect impacts due to effects on prey species and habitats

- ✖e Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

Entanglement

- ✖f Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

In-combination

- ✖g No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, and no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔h Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Dornoch Firth and Loch Fleet SPA

Name of Designated Site	Dornoch Firth and Loch Fleet SPA																	
EU Code	UK9001622																	
Distance to Project	174.56km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Greylag goose (non-breeding) ²⁰																		
Bar-tailed godwit (non-breeding)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Wigeon (non-breeding)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Osprey (breeding) ²¹																		
Waterbird assemblage (non-breeding)	*a	*a	*a	*b	*b	*b		✓d		*e	*e	*e		*f		*g	✓h	*g
Teal (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Scaup (non-breeding) (CoWA) ²²																		
Curlew (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Redshank (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Dunlin (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Oystercatcher (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g

²⁰ No connectivity concluded based on features likely migratory route suggested in Woodward et al., (2023).
²¹ Non-seabird species with no connectivity to the OAA.
²² No connectivity concluded based on features likely migratory route suggested in Woodward et al., (2023).

Evidence supporting conclusions

Direct habitat loss

- ✖a For migratory waterbird features, there is no pathway for effect as these features are unlikely to use the Project marine area for roosting and / or foraging. Birds flying through the Project area on migration would be unaffected by habitat loss. LSE can therefore be excluded for these features for all phases of the Project.

Distributional responses

- ✖b Migratory waterbirds are unlikely to be affected by disturbance / displacement effects during migration movements, as they do not interact with the marine environment around the Project. As such, LSE can be excluded for these features for all phases of the Project.

Collision risk

- ✔c There is potential for collision with WTGs for migratory waterbirds during migration flights, given that these features may migrate through the OAA within the ‘at risk’ height range (i.e. within the rotor swept area) whilst on passage. LSE cannot be excluded for these features.
- ✔d LSE concluded for components of the waterbird assemblage, therefore LSE concluded for the waterbird assemblage.

Indirect impacts due to effects on prey species and habitats

- ✖e Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

Entanglement

- ✖f Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

In-combination

- ✖g No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, and no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔h Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Inner Moray Firth SPA

Name of Designated Site	Inner Moray Firth SPA																	
EU Code	UK9001624																	
Distance to Project	192.48km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Greylag goose (non-breeding) ²³																		
Red-breasted merganser (non-breeding)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Bar-tailed godwit (non-breeding)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Redshank (non-breeding)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Common tern (breeding) ²⁴																		
Osprey (breeding) ²⁵																		
Waterbird assemblage (non-breeding)	*a	*a	*a	*b	*b	*b		✓d		*e	*e	*e		*f		*g	✓h	*g
Cormorant (non-breeding) (CoWA) ²⁶																		
Teal (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Wigeon (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Goldeneye (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Goosander (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g

²³ No connectivity concluded based on features likely migratory route suggested in Woodward et al., (2023).
²⁴ No connectivity concluded based on features behaviour to track the coast on migration up to a maximum of 60km offshore (WWT Consulting, 2014).
²⁵ Non-seabird species with no connectivity to the OAA.
²⁶ Species considered to be largely sedentary therefore no potential connectivity to the Project.

Name of Designated Site	Inner Moray Firth SPA																	
EU Code	UK9001624																	
Distance to Project	192.48km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Scaup (non-breeding) (CoWA) ²⁷																		
Curlew (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Oystercatcher (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g

Evidence supporting conclusions

Direct habitat loss

*a For migratory waterbird features, there is no pathway for effect as these features are unlikely to use the Project marine area for roosting and / or foraging. Birds flying through the Project area on migration would be unaffected by habitat loss. LSE can therefore be excluded for these features for all phases of the Project.

Distributional responses

*b Migratory waterbirds are unlikely to be affected by disturbance / displacement effects during migration movements, as they do not interact with the marine environment around the Project. As such, LSE can be excluded for these features for all phases of the Project.

Collision risk

- ✓c There is potential for collision with WTGs for migratory waterbirds during migration flights, given that these features may migrate through the OAA within the ‘at risk’ height range (i.e. within the rotor swept area) whilst on passage. LSE cannot be excluded for these features.
- ✓d LSE concluded for components of the waterbird assemblage, therefore LSE concluded for the waterbird assemblage.

Indirect impacts due to effects on prey species and habitats

*e Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

²⁷ No connectivity concluded based on features likely migratory route suggested in Woodward et al., (2023).

Entanglement

✖f Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

In-combination

✖g No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, and no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

✔h Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Cromarty Firth SPA

Name of Designated Site	Cromarty Firth SPA																	
EU Code	UK9001623																	
Distance to Project	190.99km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Whooper swan (non-breeding) ²⁸																		
Greylag goose (non-breeding) ²⁸																		
Bar-tailed godwit (non-breeding)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Common tern (breeding) ²⁹																		
Waterbird assemblage (non-breeding)	*a	*a	*a	*b	*b	*b		✓d		*e	*e	*e		*f		*g	✓h	*g
Red-breasted merganser (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Scaup (non-breeding) (CoWA) ²⁸																		
Pintail (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Wigeon (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Redshank (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Curlew (non-breeding)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Oystercatcher (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g
Dunlin (non-breeding) (CoWA)	*a	*a	*a	*b	*b	*b		✓c		*e	*e	*e		*f		*g	✓h	*g

²⁸ No connectivity concluded based on features likely migratory route suggested in Woodward et al., (2023).
²⁹ No connectivity concluded based on features behaviour to track the coast on migration up to a maximum of 60km offshore (WWT Consulting, 2014).

Name of Designated Site	Cromarty Firth SPA																	
EU Code	UK9001623																	
Distance to Project	190.99km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Knot (non-breeding) (CoWA) ²⁸																		
Osprey ³⁰																		

Evidence supporting conclusions

Direct habitat loss

✖a For migratory waterbird features, there is no pathway for effect as these features are unlikely to use the Project marine area for roosting and / or foraging. Birds flying through the Project area on migration would be unaffected by habitat loss. LSE can therefore be excluded for these features for all phases of the Project.

Distributional responses

✖b Migratory waterbirds are unlikely to be affected by disturbance / displacement effects during migration movements, as they do not interact with the marine environment around the Project. As such, LSE can be excluded for these features for all phases of the Project.

Collision risk

- ✔c There is potential for collision with WTGs for migratory waterbirds during migration flights, given that these features may migrate through the OAA within the ‘at risk’ height range (i.e. within the rotor swept area) whilst on passage. LSE cannot be excluded for these features.
- ✔d LSE concluded for components of the waterbird assemblage, therefore LSE concluded for the waterbird assemblage.

Indirect impacts due to effects on prey species and habitats

✖e Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

³⁰ No connectivity concluded based on features likely migratory route suggested in Woodward et al., (2023).

Entanglement

✖f Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

In-combination

✖g No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, and no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

✔h Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix 1: Loch Ashie SPA

Name of Designated Site	Loch Ashie SPA																	
EU Code	UK9001554																	
Distance to Project	218.01km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Slavonian grebe (non-breeding)	✖a	✖a	✖a	✖b	✖b	✖b		✖c		✖d	✖d	✖d		✖e		✖f	✖f	✖f

Evidence supporting conclusions

Direct habitat loss

*a For migratory waterbird features, there is no pathway for effect as these features are unlikely to use the Project marine area for roosting and / or foraging. Birds flying through the Project area on migration would be unaffected by habitat loss. LSE can therefore be excluded for these features for all phases of the Project.

Distributional responses

*b Migratory waterbirds are unlikely to be affected by disturbance / displacement effects during migration movements, as they do not interact with the marine environment around the Project. As such, LSE can be excluded for these features for all phases of the Project.

Collision risk

*c The populations of these features that overwinter in Scotland tend to migrate to breeding grounds in Iceland (Thórarinnsson et al., 2023). Therefore, their flight paths are unlikely to interact with the Project, especially considering the limited number of individuals which make up the citation population (60 individuals). LSE can be ruled out.

Indirect impacts due to effects on prey species and habitats

*d Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

Entanglement

*e Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

In-combination

- ✖f No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, and no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Caithness and Sutherland Peatlands SPA

Name of Designated Site	Caithness and Sutherland Peatlands SPA																	
EU Code	UK9001151																	
Distance to Project	138.52km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Red-throated diver (breeding) ³¹																		
Black-throated diver (breeding) ³¹																		
Common scoter (breeding)	*a	*a	*a	*b	*b	*b		*c		*e	*e	*e		*f		*g	*g	*g
Wigeon (breeding)	*a	*a	*a	*b	*b	*b		*c		*e	*e	*e		*f		*g	*g	*g
Golden plover (breeding) ³¹																		
Wood sandpiper (breeding) ³¹																		
Dunlin (breeding) ³¹																		
Greenshank (breeding)	*a	*a	*a	*b	*b	*b		✓d		*e	*e	*e		*f		*g	✓h	*g
Short-eared owl (breeding)	*a	*a	*a	*b	*b	*b		*c		*e	*e	*e		*f		*g	*g	*g
Merlin (breeding) ³²																		
Hen harrier (breeding) ³¹																		
Golden eagle (breeding) ³²																		

³¹ No connectivity concluded based on features likely migratory route suggested in Woodward et al., (2023).
³² Resident raptor species, therefore no potential connectivity.

Evidence supporting conclusions

Direct habitat loss

- ✖a For migratory waterbird features, there is no pathway for effect as these features are unlikely to use the Project marine area for roosting and / or foraging. Birds flying through the Project area on migration would be unaffected by habitat loss. LSE can therefore be excluded for these features for all phases of the Project.

Distributional responses

- ✖b Migratory waterbirds are unlikely to be affected by disturbance / displacement effects during migration movements, as they do not interact with the marine environment around the Project. As such, LSE can be excluded for these features for all phases of the Project.

Collision risk

- ✖c Very small breeding citation population size at the SPA (less than 50 pairs) when combined with the broad front migratory corridor for the species (Woodward et al., 2023) means their flight paths are highly unlikely to interact with the Project. LSE can be ruled out.
- ✔d There is potential for collision with WTGs for migratory waterbirds during migration flights, given that these features may migrate through the OAA within the ‘at risk’ height range (i.e. within the rotor swept area) whilst on passage. LSE cannot be excluded for these features.

Indirect impacts due to effects on prey species and habitats

- ✖e Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

Entanglement

- ✖f Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

In-combination

- ✖g No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, and no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔h Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Loch Flemington SPA

Name of Designated Site	Loch Flemington SPA																	
EU Code	UK9001691																	
Distance to Project	196.56km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Slavonian grebe (breeding)	✖a	✖a	✖a	✖b	✖b	✖b		✖c		✖d	✖d	✖d		✖e		✖f	✖f	✖f

Evidence supporting conclusions

Direct habitat loss

*a For migratory waterbird features, there is no pathway for effect as these features are unlikely to use the Project marine area for roosting and / or foraging. Birds flying through the Project area on migration would be unaffected by habitat loss. LSE can therefore be excluded for these features for all phases of the Project.

Distributional responses

*b Migratory waterbirds are unlikely to be affected by disturbance / displacement effects during migration movements, as they do not interact with the marine environment around the Project. As such, LSE can be excluded for these features for all phases of the Project.

Collision risk

*c Very small breeding citation population size at the SPA (60 pairs) when combined with the broad front migratory corridor for the species (Woodward et al., 2023) means their flight paths are highly unlikely to interact with the Project. LSE can be ruled out.

Indirect impacts due to effects on prey species and habitats

*d Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

Entanglement

*e Migratory waterbird features are unlikely to use the marine environment around the Project for foraging; therefore, LSE can be excluded for these features for all phases of the Project.

In-combination

- ✖f No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, and no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Forth Islands SPA

Name of Designated Site	Forth Islands SPA																	
EU Code	UK9004171																	
Distance to Project	225.93km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Lesser black-backed gull (breeding) ³³																		
Gannet (breeding)	✕a	✕b	✕c	✕e	✓f	✕g		✓n		✕r	✕r	✕r		✓t		✕v	✓w	✕v
Sandwich tern (breeding) ³⁴																		
Roseate tern (breeding) ³⁴																		
Common tern (breeding) ³⁴																		
Arctic tern (breeding) ³⁴																		
Puffin (breeding)	✕a	✕b	✕c	✕e	✓h	✕g		✕o		✕r	✕r	✕r		✓t		✕v	✓w	✕v
Shag (breeding) ³⁴																		
Seabird assemblage (breeding)	✕d	✕d	✕d	✕i	✓j	✕i		✓p		✕s	✕s	✕s		✓t		✕v	✓w	✕v
Kittiwake (breeding, CoSA)	✕a	✕b	✕c	✕e	✓k	✕g		✓n		✕r	✕r	✕r		✕u		✕v	✓w	✕v
Herring gull (breeding, CoSA)	✕a	✕b	✕c	✕e	✕l	✕g		✓q		✕r	✕r	✕r		✕u		✕v	✓w	✕v
Guillemot (breeding, CoSA) ³⁴																		
Razorbill (breeding, CoSA)	✕a	✕b	✕c	✕e	✓m	✕g		✕o		✕r	✕r	✕r		✓t		✕v	✓w	✕v

³³ This species was not recorded within the OAA during site-specific digital aerial surveys and was only recorded in very small numbers within the 2km survey buffer with two instances of a single bird, resulting in an abundance estimate of eight individuals in April 2021 and November 2022. Therefore, this feature has been screened out.

³⁴ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

Name of Designated Site	Forth Islands SPA																	
EU Code	UK9004171																	
Distance to Project	225.93km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Cormorant (breeding, CoSA) ³⁴																		

Evidence supporting conclusions

Direct habitat loss

- ✖a

During the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on breeding gannet, puffin, kittiwake, herring gull, and razorbill given the distance between the colony and the Project footprint. The foraging range of gannet, puffin, kittiwake, herring gull, and razorbill is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- ✖b

During the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 226 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of gannet, puffin, kittiwake, herring gull, and razorbill are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- ✖c

The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- ✖d

No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional responses

- ✖e

The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✔f

Strong and consistent avoidance of operation and maintenance activities (Dierschke et al. 2016) within Project OAA leading to potential LSE identified during both breeding and non-breeding seasons for disturbance and displacement.
- ✖g

The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.

- ✓hSpecies classified as moderate sensitivity to operation and maintenance disturbance and displacement activities (SNCBs, 2022). LSE identified during both breeding and non-breeding seasons.
- ✖iNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✓jLSE concluded for components of the seabird assemblage, therefore, LSE concluded for the seabird assemblage for disturbance and displacement only.
- ✓kThe current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- ✖lSpecies identified as showing weak attraction / no distributional response to the presence of offshore wind farms (Dierschke et al. 2016), therefore, species can be considered not sensitive during operational and maintenance activities. Therefore, LSE can be ruled out for disturbance and displacement.
- ✓mModerate sensitivity to disturbance and displacement from operation and maintenance activities (SNCBs, 2022) associated with the Project area, though potential for an effect only during non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). However, during the non-breeding season connectivity limited due to mixing of wider North Sea populations and, therefore, any effect is likely to be immaterial, though screened in on a precautionary basis.

Collision risk

- ✓nSpecies recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE.
- ✖oA species that flies low to the water with low to very low risk of collision from the project (Bradbury et al. 2014). No LSE identified.
- ✓pLSE concluded for components of the seabird assemblage, therefore, LSE concluded for the seabird assemblage.
- ✓qOAA located outwith of the species mean max plus one SD foraging range. Therefore, no connectivity during the breeding season. During the non-breeding season, connectivity is limited due to the mixing of wider North Sea populations and, therefore, any effect is likely to be immaterial. However, given the numbers recorded during the site-specific surveys (a peak abundance estimate of 73 in November 2022 (APEM, 2023)), this species has been screened in as a precaution. Potential for LSE.

Indirect impacts due to effects on prey species and habitats

- ✖rPrey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project OAA and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.
- ✖sNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Entanglement

- ✓tDirect entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.
- ✖uFor surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- ✖vNo potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✓wWhere potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Copinsay SPA

Name of Designated Site	Copinsay SPA																	
EU Code	UK9002151																	
Distance to Project	127.69km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Seabird assemblage (breeding)	x _a	x _a	x _a	x _e	✓ _f	x _e		✓ _m		x _q	x _q	x _q		✓ _s		x _u	✓ _v	x _u
Kittiwake (breeding, CoSA)	x _b	x _c	x _d	x _g	✓ _h	x _i		✓ _n		x _r	x _r	x _r		x _t		x _u	✓ _v	x _u
Great black-backed gull (breeding, CoSA)	x _b	x _c	x _d	x _g	x _j	x _i		✓ _o		x _r	x _r	x _r		x _t		x _u	✓ _v	x _u
Guillemot (breeding, CoSA)	x _b	x _c	x _d	x _g	✓ _k	x _i		x _p		x _r	x _r	x _r		✓ _s		x _u	✓ _v	x _u
Fulmar (breeding, CoSA)	x _b	x _c	x _d	x _g	x _l	x _i		x _p		x _r	x _r	x _r		x _t		x _u	x _u	x _u

Evidence supporting conclusions

Direct habitat loss

- *aNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- *bDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on breeding kittiwake, great black-backed gull, guillemot and fulmar given the distance between the colony and the Project footprint. The foraging range of kittiwake, great black-backed gull, guillemot and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *dDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 128 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of guillemot, kittiwake, herring gull, razorbill and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- *dThe impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Distributional responses

- ✖e

No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✔f

LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✖g

The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✔h

The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westermost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- ✖i

The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- ✖j

Species identified as showing weak attraction / no distributional response to the presence of offshore wind farms (Dierschke et al. 2016), therefore, species can be considered not sensitive during operational and maintenance activities. Therefore, LSE can be ruled out for disturbance and displacement.
- ✔k

Species classified as having moderate sensitivity to operation and maintenance disturbance and displacement activities (Bradbury et al. 2014). LSE identified during both breeding and non-breeding seasons for disturbance and displacement.
- ✖l

Fulmar classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore the displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- ✔m

LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔n

Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE.
- ✔o

Species know to fly at potential collision height (PCH; Johnston et al. 2014) though connectivity limited to the non-breeding season only due to site being outwith of the species foraging range. During the non-breeding season connectivity is limited due to mixing of wider North Sea populations and therefore any effect likely to be immaterial, especially considered the low numbers recorded during site-specific surveys, though screened in on a precautionary basis.
- ✖p

A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- ✖q

No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖r

Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

Entanglement

- ✔s

Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.

✖t For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- ✖u No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔v Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Hoy SPA

Name of Designated Site	Hoy SPA																	
EU Code	UK9002141																	
Distance to Project	154.71km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Great skua (breeding)	*a	*b	*c	*e	*f	*g		✓n		*s	*s	*s		*u		*w	✓x	*w
Red-throated diver (breeding) ³⁵																		
Peregrine ³⁶																		
Seabird assemblage (breeding)	*d	*d	*d	*h	✓i	*h		✓o		*t	*t	*t		✓v		*w	✓x	*w
Kittiwake (breeding, CoSA)	*a	*b	*c	*e	✓j	*g		✓p		*s	*s	*s		*u		*w	✓x	*w
Great black-backed gull (breeding, CoSA)	*a	*b	*c	*e	*k	*g		✓q		*s	*s	*s		*u		*w	✓x	*w
Guillemot (breeding, CoSA) ³⁵																		
Puffin (breeding, CoSA)	*a	*b	*c	*e	✓l	*g		*r		*s	*s	*s		✓v		*w	✓x	*w
Fulmar (breeding, CoSA)	*a	*b	*c	*e	*m	*g		*r		*s	*s	*s		*u		*w	*w	*w

Evidence supporting conclusions

Direct habitat loss

*a During the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on breeding great skua, kittiwake, great black-backed gull, puffin and fulmar given the distance between the colony and the Project footprint. The foraging range of great skua, kittiwake, great black-backed gull, puffin and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.

³⁵ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.
³⁶ Non-seabird species with no connectivity to the OAA.

- ✖b During the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 154 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of great skua, kittiwake, great black-backed gull, puffin and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, an LSE can be excluded for these features in both the breeding and non-breeding seasons.
- ✖c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- ✖d No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional responses

- ✖e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, an LSE can be ruled out.
- ✖f Great skua show very low sensitivity to the presence of offshore wind farms (SNCBs, 2022) and a review undertaken by Dierschke et al. (2016) stated strong avoidance appears to be unlikely. Therefore, this species is considered to have low sensitivity to operational and maintenance disturbance and displacement activities, therefore LSE can be ruled out.
- ✖g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- ✖h No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✔i LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔j The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- ✖k Species identified as showing weak attraction / no response to the presence of offshore wind farms (Dierschke et al. 2016), therefore, species can be considered not sensitive to operational and maintenance disturbance and displacement activities. Therefore, LSE can be ruled out.
- ✔l Species classified as moderate sensitivity to operation and maintenance disturbance and displacement activities (SNCBs, 2022). LSE identified during both breeding and non-breeding seasons.
- ✖m Fulmar is classified as having very low sensitivity to disturbance and displacement (Bradbury et al. 2014) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore, the displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect, due to the scale of available alternate areas of water for this species to forage across. During the non-breeding season connectivity is more limited due to mixing of wider North Sea populations and, therefore, any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision Risk

- ✔n Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) though potential connectivity limited to the breeding season, due to no connectivity expected during the non-breeding season as species is considered to migrate up to a maximum of 60km off the coastline (WWT Consulting, 2014). Potential for LSE concluded.
- ✔o LSE concluded for components of the seabird assemblage, therefore, LSE concluded for the seabird assemblage.
- ✔p Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE.
- ✔q Species know to fly at potential collision height (PCH; Johnston et al. 2014) though connectivity limited to the non-breeding season only due to site being outwith of the species foraging range. During the non-breeding season connectivity is limited due to mixing of wider North Sea populations and therefore any effect likely to be immaterial, especially considered the low numbers recorded during site-specific surveys, though screened in on a precautionary basis.
- ✖r A species that flies low to the water with low to very low risk of collision from the project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- ✖s

Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.
- ✖t

No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Entanglement

- ✖u

For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.
- ✔v

Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.

In-combination

- ✖w

No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔x

Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Auskerry SPA

Name of Designated Site	Auskerry SPA																	
EU Code	UK9002381																	
Distance to Project	132.54km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Arctic tern (breeding) ³⁷																		
Storm-petrel (breeding)	✖a	✖b	✖c	✖d	✖e	✖f		✖g		✖h	✖h	✖h		✖i		✖j	✖j	✖j

Evidence supporting conclusions

Direct habitat loss

- *aDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on breeding storm-petrel given the distance between the colony and the Project footprint. The foraging range of storm-petrel is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *bDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 132 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging range of storm-petrel is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- *cThe impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Distributional responses

- *dThe construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are

³⁷ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

- also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- *e Species classified as very low sensitivity to disturbance and displacement (SNCBs, 2022), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to species not remaining in significant numbers within Scottish marine areas (NatureScot, 2023), therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.
 - *f The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Collision risk

- *g A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- *h Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

Entanglement

- *i For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- *j No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: St. Abb’s Head to Fast Castle SPA

Name of Designated Site	St. Abb’s Head to Fast Castle SPA																	
EU Code	UK9004271																	
Distance to Project	245.87km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Seabird assemblage (breeding)	*a	*a	*a	*e	✓g	*e		✓l		*p	*p	*p		✓r		*t	✓u	*t
Kittiwake (breeding, CoSA)	*b	*c	*d	*g	✓h	*i		✓m		*q	*q	*q		*s		*t	✓u	*t
Herring gull (breeding, CoSA)	*b	*c	*d	*g	*j	*i		✓n		*q	*q	*q		*s		*t	✓u	*t
Guillemot (breeding, CoSA) ³⁸																		
Razorbill (breeding, CoSA)	*b	*c	*d	*g	✓k	*i		*o		*q	*q	*q		✓r		*t	✓u	*t
Shag (breeding, CoSA) ³⁸																		

Evidence supporting conclusions

Direct habitat loss

- *aNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- *bDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on breeding kittiwake, herring gull and razorbill given the distance between the colony and the Project footprint. The foraging range of kittiwake, herring gull and razorbill is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *cDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 245 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of kittiwake, herring gull and razorbill are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.

³⁸ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

✖d The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.

Distributional responses

- ✖e No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✔f LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✖g The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✔h The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- ✖i The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- ✖j Species identified as showing weak attraction / no distributional response (no disturbance and displacement) to the presence of offshore wind farms (Dierschke et al. 2016), therefore, species can be considered not sensitive during operational and maintenance activities. Therefore, LSE can be ruled out for disturbance and displacement.
- ✔k Moderate sensitivity to disturbance and displacement from operation and maintenance activities (Bradbury et al. 2014) associated with the Project area, though potential for an effect only during non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). However, during the non-breeding season connectivity limited due to mixing of wider North Sea populations and, therefore, any effect is likely to be immaterial, though screened in on a precautionary basis.

Collision risk

- ✔l LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔m Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE.
- ✔n Species know to fly at potential collision height (PCH; Johnston et al. 2014) though connectivity limited to the non-breeding season only due to site being outwith of the species foraging range. During the non-breeding season connectivity is limited due to mixing of wider North Sea populations and therefore any effect likely to be immaterial, especially considered the low numbers recorded during site-specific surveys, though screened in on a precautionary basis.
- ✖o A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- ✖p No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖q Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

Entanglement

- ✔r Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.

✖s For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

✖t Where potential for no LSE has been concluded alone, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

✔u Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Fair Isle SPA

Name of Designated Site	Fair Isle SPA																	
EU Code	UK90002091																	
Distance to Project	132.96km																	
Likely Effect of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Arctic tern (breeding)																		
Guillemot (breeding)	*a	*b	*c	*e	✓f	*g		*o		*t	*t	*t		✓v		*x	✓y	*x
Fair Isle wren (breeding) ³⁹																		
Seabird assemblage (breeding)	*d	*d	*d	*h	✓i	*h		✓p		*u	*u	*u		✓v		*x	✓y	*x
Kittiwake (breeding, CoSA)	*a	*b	*c	*e	✓j	*g		✓q		*t	*t	*t		*w		*x	✓y	*x
Herring gull (breeding, CoSA)	*a	*b	*c	*e	*k	*g		✓r		*t	*t	*t		*w		*x	✓y	*x
Great skua (breeding, CoSA)	*a	*b	*c	*e	*l	*g		✓s		*t	*t	*t		*w		*x	✓y	*x
Arctic skua (breeding, CoSA) ⁴⁰																		
Razorbill (breeding, CoSA)	*a	*b	*c	*e	✓f	*g		*o		*t	*t	*t		✓v		*x	✓y	*x
Puffin (breeding, CoSA)	*a	*b	*c	*e	✓f	*g		*o		*t	*t	*t		✓v		*x	✓y	*x
Gannet (breeding, CoSA)	*a	*b	*c	*e	✓m	*g		✓q		*t	*t	*t		✓v		*x	✓y	*x
Shag (breeding, CoSA) ⁴⁰																		
Fulmar (breeding, CoSA)	*a	*b	*c	*e	*n	*g		*o		*t	*t	*t		*w		*x	*x	*x

³⁹ Non-seabird species with no connectivity to the OAA.
⁴⁰ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

Evidence supporting conclusions

Direct Habitat Loss

- ✖a During the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on breeding guillemot, kittiwake, herring gull, razorbill and fulmar given the distance between the colony and the Project footprint. The foraging range of guillemot, kittiwake, herring gull, razorbill and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- ✖b During the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 89 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of guillemot, kittiwake, herring gull, razorbill and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- ✖c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- ✖d No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional Responses

- ✖e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✔f Species classified as moderate sensitivity to operation and maintenance disturbance and displacement activities (SNCBs, 2022). LSE identified during both breeding and non-breeding seasons.
- ✖g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- ✖h No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✔i LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔j The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- ✖k Species identified as showing weak attraction / no distributional response (no disturbance and displacement) to the presence of offshore wind farms (Dierschke et al. 2016), therefore, species can be considered not sensitive during operational and maintenance activities. Therefore, LSE can be ruled out for disturbance and displacement.
- ✖l Great skua classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 931.2km (Woodward et al. 2019), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season no connectivity is expected due to species considered to migrate up to a maximum of 60km off the coastline (WWT Consulting, 2014). LSE can be ruled out.
- ✔m Strong and consistent avoidance of operation and maintenance activities (Dierschke et al. 2016) within Project OAA potential LSE identified during both breeding and non-breeding seasons.
- ✖n Fulmar classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore the displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision Risk

- ✖o A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.
- ✔p LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔q Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE.
- ✔r Species know to fly at potential collision height (PCH; Johnston et al. 2014) though connectivity limited to the non-breeding season only due to site being outwith of the species foraging range. During the non-breeding season connectivity is limited due to mixing of wider North Sea populations and therefore any effect likely to be immaterial, especially considered the low numbers recorded during site-specific surveys, though screened in on a precautionary basis.
- ✔s Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) though connectivity limited to the breeding season only. Potential for LSE.

Indirect impacts due to effects on prey species and habitats

- ✖t Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.
- ✖u No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Entanglement

- ✔v Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.
- ✖w For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- ✖x No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔y Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Calf of Eday SPA

Name of Designated Site	Calf of Eday SPA																	
EU Code	UK9002431																	
Distance to Project	150.25km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Seabird assemblage (breeding)	*a	*a	*a	*e	✓f	*e		✓n		*r	*r	*r		✓t		*v	✓w	*v
Kittiwake (breeding, CoSA)	*b	*c	*d	*g	✓h	*i		✓o		*s	*s	*s		*u		*v	✓w	*v
Great black-backed gull (breeding, CoSA)	*b	*c	*d	*g	*j	*i		✓p		*s	*s	*s		*u		*v	✓w	*v
Guillemot (breeding, CoSA)	*b	*c	*d	*g	✓k	*i		*q		*s	*s	*s		✓t		*v	✓w	*v
Fulmar (breeding, CoSA) ⁴¹	*b	*c	*d	*g	*l	*i		*q		*s	*s	*s		*u		*v	*v	*v
Cormorant (breeding, CoSA) ⁴¹																		

Evidence supporting conclusions

Direct habitat loss

- *aNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- *bDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on breeding guillemot, kittiwake, great black-backed gull and fulmar given the distance between the colony and the Project footprint. The foraging range of guillemot, kittiwake, great black-backed gull and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *cDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 150 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given

⁴¹ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

- the very small footprint of habitat loss during the operational phase, the foraging ranges of guillemot, kittiwake, great black-backed gull and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- ✖d The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Distributional responses

- ✖e No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✔f LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔h The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- ✖i The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- ✖j Species identified as showing weak attraction / no distributional response (no disturbance and displacement) to the presence of offshore wind farms (Dierschke et al. 2016), therefore, species can be considered not sensitive during operational and maintenance activities. Therefore, LSE can be ruled out for disturbance and displacement.
- ✔k Species classified as moderate sensitivity to operation and maintenance disturbance and displacement activities (SNCBs, 2022). LSE identified during both breeding and non-breeding seasons.
- ✖l Fulmar is classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019; NatureScot, 2023), Therefore the displacement of this species from the project OAA during the breeding bio-season is unlikely to cause a material effect. During the non-breeding bio-season, connectivity is limited due to mixing of wider North Sea populations and, therefore, any effect is likely to be immaterial. Therefore, LSE can be ruled out for disturbance and displacement.

Collision risk

- ✔n LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔o Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE.
- ✔p Species know to fly at potential collision height (PCH; Johnston et al. 2014) though connectivity limited to the non-breeding season only due to site being outwith of the species foraging range. During the non-breeding season connectivity is limited due to mixing of wider North Sea populations and therefore any effect likely to be immaterial, especially considered the low numbers recorded during site-specific surveys, though screened in on a precautionary basis.
- ✖q A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- ✖r No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖s Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result from displaced or reduced foraging resources. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

Entanglement

- ✔t Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.
- ✖u For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- ✖v Where potential for no LSE has been concluded alone, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔w Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Rousay SPA

Name of Designated Site	Rousay SPA																	
EU Code	UK9002371																	
Distance to Project	158.88km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Arctic tern (breeding) ⁴²																		
Seabird assemblage (breeding)	*a	*a	*a	*e	✓f	*e		✓k		*n	*n	*n		*p		*q	✓r	*q
Kittiwake (breeding, CoSA)	*b	*c	*d	*g	✓h	*i		✓l		*o	*o	*o		*p		*q	✓r	*q
Arctic skua (breeding, CoSA) ⁴²																		
Guillemot (breeding, CoSA) ⁴²																		
Fulmar (breeding, CoSA)	*b	*c	*d	*g	*j	*i		*m		*o	*o	*o		*p		*q	*q	*q

Evidence supporting conclusions

Direct habitat loss

- *aNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- *bDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on breeding kittiwake and fulmar given the distance between the colony and the Project footprint. The foraging range of kittiwake and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *cDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 158 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of kittiwake and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.

⁴² OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

✖d The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Distributional responses

- ✖e No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✔f LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✖g The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✔h The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- ✖i The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- ✖j Fulmar classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- ✔k LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔l Species recorded within site-specific surveys within the project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding bio-seasons. Potential for LSE.
- ✖m A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- ✖n No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖o Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

Entanglement

- ✖p For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- ✖q No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔r Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Marwick Head SPA

Name of Designated Site	Marwick Head SPA																	
EU Code	UK9002121																	
Distance to Project	175.85km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Guillemot (breeding) ⁴³																		
Seabird assemblage (breeding)	✖a	✖a	✖a	✖e	✓f	✖e		✓j		✖l	✖l	✖l		✖n		✖o	✓p	✖o
Kittiwake (breeding, CoSA)	✖b	✖c	✖d	✖g	✓h	✖i		✓k		✖m	✖m	✖m		✖n		✖o	✓p	✖o

Evidence supporting conclusions

Direct habitat loss

- *aNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- *bDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on breeding kittiwake given the distance between the colony and the Project footprint. The foraging range of kittiwake is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *cDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 175 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging range of kittiwake is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- *dThe impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

⁴³ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

Distributional responses

- ✖e

No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✔f

LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✖g

The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✔h

The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westermost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- ✖i

The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Collision risk

- ✔j

LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔k

Species recorded within site-specific surveys within the project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding bio-seasons. Potential for LSE.

Indirect impacts due to effects on prey species and habitats

- ✖l

No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖m

Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

Entanglement

- ✖n

For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- ✖o

No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔p

Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: West Westray SPA

Name of Designated Site	West Westray SPA																	
EU Code	UK9002101																	
Distance to Project	167.27km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional Responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Arctic tern (breeding) ⁴⁴																		
Guillemot (breeding) ⁴⁴																		
Seabird assemblage (breeding)	*a	*a	*a	*e	✓f	*e		✓l		*o	*o	*o		✓q		*s	✓t	*s
Kittiwake (breeding, CoSA)	*b	*c	*d	*g	✓h	*i		✓m		*p	*p	*p		*r		*s	✓t	*s
Arctic skua (breeding, CoSA) ⁴⁴																		
Razorbill (breeding, CoSA)	*b	*c	*d	*g	✓j	*i		*n		*p	*p	*p		✓q		*s	✓t	*s
Fulmar (breeding, CoSA)	*b	*c	*d	*g	*k	*i		*n		*p	*p	*p		*r		*s	*s	*s

Evidence supporting conclusions

Direct habitat loss

- *aNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- *bDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on breeding kittiwake, razorbill and fulmar given the distance between the colony and the Project footprint. The foraging range of kittiwake, razorbill and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *cDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 167 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given

⁴⁴ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

- the very small footprint of habitat loss during the operational phase, the foraging ranges of kittiwake, razorbill and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- ✖d The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Distributional responses

- ✖e No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✔f LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✖g The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✔h The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westermost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- ✖i The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- ✔j Moderate sensitivity to disturbance and displacement from operation and maintenance activities (SNCBs, 2022) associated with the Project area, though potential for an effect only during the non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). However, during the non-breeding season connectivity limited due to mixing of wider North Sea populations and, therefore, any effect is likely to be immaterial, though screened in on a precautionary basis.
- ✖k Fulmar classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- ✔l LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔m Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE concluded.
- ✖n A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- ✖o No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖p Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

Entanglement

- ✓q Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.
- ✖r For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- ✖s No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✓t Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Farne Islands SPA

Name of Designated Site	Farne Islands SPA																	
EU Code	UK9006021																	
Distance to Project	267.78km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional Responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Sandwich tern (breeding) ⁴⁵																		
Roseate tern (breeding) ⁴⁵																		
Common tern (breeding) ⁴⁵																		
Arctic tern (breeding) ⁴⁵																		
Guillemot (breeding) ⁴⁵																		
Seabird assemblage (breeding)	x _a	x _a	x _a	x _e	✓ _f	x _e		✓ _k		x _n	x _n	x _n		✓ _p		x _r	✓ _s	x _r
Kittiwake (breeding, CoSA)	x _b	x _c	x _d	x _g	✓ _h	x _i		✓ _l		x _o	x _o	x _o		x _q		x _r	✓ _s	x _r
Puffin (breeding, CoSA)	x _b	x _c	x _d	x _f	✓ _j	x _i		x _m		x _o	x _o	x _o		✓ _p		x _r	✓ _s	x _r
Cormorant (breeding, CoSA) ⁴⁵																		
Shag (breeding, CoSA) ⁴⁵																		

⁴⁵ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

Evidence supporting conclusions

Direct habitat loss

- ✖a No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖b During the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on breeding kittiwake and puffin given the distance between the colony and the Project footprint. The foraging range of kittiwake and puffin is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons..
- ✖c During the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 267 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of kittiwake and puffin are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- ✖d The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Distributional responses

- ✖e No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✔f LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✖g The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✔h The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- ✖i The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- ✔j Moderate sensitivity to disturbance and displacement from operation and maintenance activities (SNCBs, 2022) associated with the Project area, though potential for an effect only during the non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). However, during the non-breeding season connectivity limited due to mixing of wider North Sea populations and, therefore, any effect is likely to be immaterial, though screened in on a precautionary basis.

Collision risk

- ✔k LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔l Species recorded within site-specific surveys within the project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding bio-seasons. Potential for LSE.
- ✖m A species that flies low to the water with low to very low risk of collision from the project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- ✖n

No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖o

Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

Entanglement

- ✔p

Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.
- ✖q

For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- ✖r

No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔s

Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Cape Wrath SPA

Name of Designated Site	Cape Wrath SPA																	
EU Code	UK9001231																	
Distance to Project	243.93km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional Responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Seabird assemblage (breeding)	*a	*a	*a	*e	*e	*e		*l		*o	*o	*o		*q		*t	*t	*t
Kittiwake (breeding, CoSA)	*b	*c	*d	*f	*g	*h		*m		*p	*p	*p		*r		*t	*t	*t
Guillemot (breeding, CoSA) ⁴⁶																		
Razorbill (breeding, CoSA)	*b	*c	*d	*f	*i	*h		*n		*p	*p	*p		*s		*t	*t	*t
Puffin (breeding, CoSA)	*b	*c	*d	*f	*j	*h		*n		*p	*p	*p		*s		*t	*t	*t
Fulmar (breeding, CoSA)	*b	*c	*d	*f	*k	*h		*n		*p	*p	*p		*r		*t	*t	*t

Evidence supporting conclusions

Direct habitat loss

- *aNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- *bDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on kittiwake, razorbill, puffin and fulmar given the distance between the colony and the Project footprint. The foraging range of kittiwake, razorbill, puffin and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *cDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 243 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of kittiwake, razorbill, puffin and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.

⁴⁶ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

✖d The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Distributional responses

- ✖e No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖f The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✖g The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). Potential for connectivity considered highly limited during the breeding season despite the Project OAA being within species mean max plus one SD foraging range (Woodward et al. 2019) due to significant land barriers between the SPA and the Project array. During the non-breeding season only 1% of the SPA population is considered to remain within the North Sea for the entire non-breeding season (Furness 2015). Therefore, any effect is likely to be immaterial, especially considering the wider mixing of populations within the non-breeding season. Therefore, no potential for LSE concluded.
- ✖h The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- ✖i Moderate sensitivity to disturbance and displacement from operation and maintenance activities (SNCBs, 2022) associated with the Project area, though potential for an effect only during the non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). However, during the non-breeding season only 2% of the SPA population is considered to remain within the North Sea for the entire non-breeding season (Furness 2015). Therefore, any effect is likely to be immaterial, especially considering the wider mixing of populations within the non-breeding season. Therefore, no potential for LSE concluded.
- ✖j Species classified as having moderate sensitivity to operation and maintenance disturbance and displacement activities (Bradbury et al. 2014). Potential for connectivity considered highly limited during the breeding season despite the Project OAA being within species mean max plus one SD foraging range (Woodward et al. 2019) due to significant land barriers between the SPA and the Project array. During the non-breeding season only 0.1% of the SPA population is considered to remain within the North Sea (Furness 2015). Therefore, any effect is likely to be immaterial, especially considering the wider mixing of populations within the non-breeding season. Therefore, no potential for LSE concluded.
- ✖k Fulmar classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- ✖l No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖m Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014). Potential for connectivity considered highly limited during the breeding season despite the Project OAA being within species mean max plus one SD foraging range (Woodward et al. 2019) due to significant land barriers between the SPA and the Project array. During the non-breeding season only 1% of the SPA population is considered to remain within the North Sea for the entire non-breeding season (Furness 2015). Therefore, any effect is likely to be immaterial, especially considering the wider mixing of populations within the non-breeding season. Therefore, no potential for LSE concluded.
- ✖n A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- ✖o No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖p Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

Entanglement

- *q No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- *r For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.
- *s Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. However, potential for an effect only during the non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). During the non-breeding season limited number of the SPA population (2% for razorbill and 0.1% for puffin) are considered to remain within the North Sea for the entire non-breeding season (Furness 2015). Therefore, any effect is likely to be immaterial, no potential for LSE concluded.

In-combination

- *t No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Sumburgh Head SPA

Name of Designated Site	Sumburgh Head SPA																	
EU Code	UK9002511																	
Distance to Project	163.60km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional Responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Arctic tern (breeding) ⁴⁷																		
Seabird assemblage (breeding)	*a	*a	*a	*e	✓f	*e		✓k		*n	*n	*n		*p		*q	✓r	*q
Kittiwake (breeding, CoSA)	*b	*c	*d	*g	✓h	*i		✓l		*o	*o	*o		*p		*q	✓r	*q
Guillemot (breeding, CoSA) ⁴⁷																		
Fulmar (breeding, CoSA)	*b	*c	*d	*g	*j	*i		*m		*o	*o	*o		*p		*q	*q	*q

Evidence supporting conclusions

Direct habitat loss

- *aNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- *bDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on kittiwake and fulmar given the distance between the colony and the Project footprint. The foraging range of kittiwake and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for this these features during the breeding and non-breeding seasons.
- *cDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 163 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of kittiwake and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- *dThe impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

⁴⁷ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

Distributional responses

- *eNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✓fLSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- *gThe construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✓hThe current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westermost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- *iThe impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- *jFulmar classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore the displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- ✓kLSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✓lSpecies recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE.
- *mA species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- *nNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- *oPrey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

Entanglement

- *pFor surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- *qNo potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✓rWhere potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Handa SPA

Name of Designated Site	Handa SPA																	
EU Code	UK90041																	
Distance to Project	260.64km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional Responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Guillemot (breeding) ⁴⁸																		
Razorbill (breeding)	*a	*b	*c	*e	*f	*g		*l		*p	*p	*p		*r		*t	*t	*t
Seabird assemblage (breeding)	*d	*d	*d	*h	*h	*h		✓m		*q	*q	*q		*s		*t	✓u	*t
Kittiwake (breeding, CoSA)	*a	*b	*c	*e	*i	*g		✓n		*p	*p	*p		*s		*t	✓u	*t
Great skua (breeding, CoSA)	*a	*b	*c	*e	*j	*g		✓o		*p	*p	*p		*s		*t	✓u	*t
Fulmar (breeding, CoSA)	*a	*b	*c	*e	*k	*g		*l		*p	*p	*p		*s		*t	*t	*t

Evidence supporting conclusions

Direct habitat loss

- *aDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on guillemot, kittiwake, herring gull, razorbill and fulmar given the distance between the colony and the Project footprint. The foraging range of guillemot, kittiwake, herring gull, razorbill and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *bDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 89 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of guillemot, kittiwake, herring gull, razorbill and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- *cThe impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

⁴⁸ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

✖d No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional responses

- ✖e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✖f Moderate sensitivity to disturbance and displacement from operation and maintenance activities (SNCBs, 2022) associated with the Project area, though potential for an effect only during the non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). However, during the non-breeding season only 2% of the SPA population is considered to remain within the North Sea for the entire non-breeding season (Furness 2015). Therefore, any effect is likely to be immaterial, especially considering the wider mixing of populations within the non-breeding season. Therefore, no potential for LSE concluded.
- ✖g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- ✖h No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖i The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westermost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). Potential for an effect only during the non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). During the non-breeding season only 1% of the SPA population is considered to remain within the North Sea for the entire non-breeding season (Furness 2015). Therefore, any effect is likely to be immaterial, especially considering the wider mixing of populations within the non-breeding season. Therefore, no potential for LSE concluded.
- ✖j Great skua classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 931.2km (Woodward et al. 2019), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season species is expected to migrate within the UK western waters rather than the North Sea given the location of the SPA (Furness 2015), therefore no connectivity during the non-breeding season. LSE can be ruled out.
- ✖k Fulmar is classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- ✖l A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.
- ✔m LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✖n Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014). Potential for an effect only during the non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). During the non-breeding season only 1% of the SPA population is considered to remain within the North Sea for the entire non-breeding season (Furness 2015). Therefore, any effect is likely to be immaterial, especially considering the wider mixing of populations within the non-breeding season. Therefore, no potential for LSE concluded.
- ✔o Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) though potential connectivity limited to the breeding season. Potential for LSE concluded.

Indirect impacts due to effects on prey species and habitats

- ✖p Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

✖q No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Entanglement

- ✖r Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. However, potential for an effect only during the non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). During the non-breeding season only 2% of the SPA population is considered to remain within the North Sea for the entire non-breeding season (Furness 2015). Therefore, any effect is likely to be immaterial, no potential for LSE concluded.
- ✖s For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- ✖t No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔u Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Sule Skerry and Sule Stack SPA

Name of Designated Site	Sule Skerry and Sule Stack SPA																	
EU Code	UK9002181																	
Distance to Project	229.32km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Puffin (breeding)	*a	*b	*c	*e	✓f	*g		*k		*m	*m	*m		✓o		*q	✓r	*q
Storm-petrel (breeding)	*a	*b	*c	*e	*h	*g		*k		*m	*m	*m		*p		*q	*q	*q
Leach’s storm-petrel (breeding)	*a	*b	*c	*e	*h	*g		*k		*m	*m	*m		*p		*q	*q	*q
Gannet (breeding) ⁴⁹																		
Seabird assemblage (breeding)	*d	*d	*d	*i	✓j	*i		*l		*n	*n	*n		✓o		*q	✓r	*q
Guillemot (breeding, CoSA) ⁵⁰																		
Shag (breeding, CoSA) ⁵⁰																		

Evidence supporting conclusions

Direct habitat loss

- *aDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on puffin, storm-petrel and Leach’s storm-petrel given the distance between the colony and the Project footprint. The foraging range of puffin, storm-petrel and Leach’s storm-petrel is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *bDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 229 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given

⁴⁹ Gannet screened out due to space partitioning behaviour (Wakefield et al., 2013).
⁵⁰ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

the very small footprint of habitat loss during the operational phase, the foraging ranges of puffin, storm-petrel and Leach's storm-petrel are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.

*c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

*d No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional responses

*e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.

✓f Species classified as having moderate sensitivity to operation and maintenance disturbance and displacement activities (SNCBs, 2022) and is within the mean max plus one SD foraging range (Woodward et al. 2019) from the Project. During the non-breeding season only 0.1% of the SPA population is considered to remain within the North Sea (Furness 2015). Therefore, any effect is likely to be immaterial, especially considering the wider mixing of populations within the non-breeding season. Therefore, LSE identified for the breeding season only.

*g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

*h Species classified as very low sensitivity to disturbance and displacement (SNCBs, 2022), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to species not remaining in significant numbers within Scottish marine areas (NatureScot, 2023), therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

*i. No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

✓j LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.

Collision risk

*k A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.

*l No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Indirect impacts due to effects on prey species and habitats

*m Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

*n No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Entanglement

✓o Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.

*p For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- *qNo potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✓rWhere potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Mousa SPA

Name of Designated Site	Mousa SPA																	
EU Code	UK9002361																	
Distance to Project	179.98km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Arctic tern (breeding) ⁵¹																		
Storm-petrel (breeding)	✕a	✕b	✕c	✕d	✕e	✕f		✕g		✕h	✕h	✕h		✕i		✕j	✕j	✕j

Evidence supporting conclusions

Direct habitat loss

- *aDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on storm-petrel given the distance between the colony and the Project footprint. The foraging range of storm-petrel is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *bDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 179 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging range of storm-petrel is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- *cThe impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Distributional responses

- *dThe construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.

⁵¹ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

- *e Species classified as very low sensitivity to disturbance and displacement (SNCBs, 2022), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to species not remaining in significant numbers within Scottish marine areas (NatureScot, 2023), therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.
- *f The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Collision risk

- *g A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- *h Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

Entanglement

- *i For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- *j Where potential for no LSE has been concluded alone, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Noss SPA

Name of Designated Site	Noss SPA																	
EU Code	UK9002081																	
Distance to Project	192.01km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Great skua (breeding)	*a	*b	*c	*e	*f	*g		✓m		*q	*q	*q		*s		*u	✓v	*u
Guillemot (breeding) ⁵²																		
Gannet (breeding)	*a	*b	*c	*e	✓h	*g		✓n		*q	*q	*q		✓t		*u	✓v	*u
Seabird assemblage (breeding)	*d	*d	*d	*f	✓i	*h		✓o		*r	*r	*r		✓t		*u	✓v	*u
Kittiwake (breeding, CoSA)	*a	*b	*c	*e	✓j	*h		✓n		*q	*q	*q		*s		*u	✓v	*u
Puffin (breeding, CoSA)	*a	*b	*c	*e	✓k	*h		*p		*q	*q	*q		✓t		*u	✓v	*u
Fulmar (breeding, CoSA)	*a	*b	*c	*e	*l	*h		*p		*q	*q	*q		*s		*u	*u	*u

Evidence supporting conclusions

Direct habitat loss

- *aDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on great skua, gannet, kittiwake, puffin and fulmar given the distance between the colony and the Project footprint. The foraging range of great skua, gannet, kittiwake, puffin and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *bDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 192 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given

⁵² OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

- the very small footprint of habitat loss during the operational phase, the foraging ranges of great skua, gannet, kittiwake, puffin and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- *c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
 - *d No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional responses

- *e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- *f Great skua classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 931.2km (Woodward et al. 2019), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season no connectivity is expected due to species considered to migrate up to a maximum of 60km off the coastline (WWT Consulting, 2014). LSE can be ruled out.
- *g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- ✓h Strong and consistent avoidance of operation and maintenance activities (Dierschke et al. 2016) within Project OAA leading to potential LSE identified during both breeding and non-breeding seasons.
- ✓i LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✓j The current SNCB's joint guidance note (SNCBs, 2022) states; 'as a general guide, any species scoring 3 or more under either category ('Disturbance Susceptibility' or 'Habitat Specialization'), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary'. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O'Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- ✓k Species classified as having moderate sensitivity to operation and maintenance disturbance and displacement activities (Bradbury et al. 2014) and is within the mean max plus one SD foraging range (Woodward et al. 2019) from the Project. Potential LSE identified for both the breeding and non-breeding seasons.
- *l Fulmar classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- ✓m Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) though potential connectivity limited to the breeding season. Potential for LSE concluded.
- ✓n Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE.
- ✓o LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- *p A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- *q Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

✕r No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Entanglement

- ✕s For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.
- ✓t Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.

In-combination

- ✕u No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✓v Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Foula SPA

Name of Designated Site	Foula SPA																	
EU Code	UK9002061																	
Distance to Project	204.39km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Arctic tern (breeding) ⁵³																		
Great skua (breeding)	*a	*b	*c	*e	*f	*g		✓o		*s	*s	*s		*u		*w	✓x	*w
Guillemot (breeding) ⁵³																		
Puffin (breeding)	*a	*b	*c	*e	✓h	*g		*p		*s	*s	*s		✓v		*w	✓x	*w
Red-throated diver (breeding) ⁵³																		
Leach's storm-petrel (breeding)	*a	*b	*c	*e	*i	*g		*p		*s	*s	*s		*u		*w	*w	*v
Shag (breeding) ⁵³																		
Seabird assemblage (breeding)	*d	*d	*d	*j	✓k	*j		✓q		*t	*t	*t		✓v		*w	✓x	*w
Kittiwake (breeding, CoSA)	*a	*b	*c	*e	✓l	*g		✓r		*s	*s	*s		*u		*w	✓x	*w
Arctic skua (breeding, CoSA) ⁵³																		
Razorbill (breeding, CoSA)	*a	*b	*c	*e	✓m	*g		*p		*s	*s	*s		✓v		*w	✓x	*w
Fulmar (breeding, CoSA)	*a	*b	*c	*e	*n	*g		*p		*s	*s	*s		*u		*w	*w	*w

⁵³ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

Evidence supporting conclusions

Direct habitat loss

- ✖a

During the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on great skua, puffin, Leach’s storm-petrel, kittiwake, razorbill given the distance between the colony and the Project footprint. The foraging range of great skua, puffin, Leach’s storm-petrel, kittiwake, razorbill is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- ✖b

During the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 204 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of great skua, puffin, Leach’s storm-petrel, kittiwake, razorbill and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- ✖c

The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- ✖d

No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional responses

- ✖e

The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✖f

Great skua classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 931.2km (Woodward et al. 2019), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season no connectivity is expected due to species considered to migrate up to a maximum of 60km off the coastline (WWT Consulting, 2014). LSE can be ruled out.
- ✖g

The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- ✔h

Species classified as having moderate sensitivity to operation and maintenance disturbance and displacement activities (Bradbury et al. 2014) and is within the mean max plus one SD foraging range (Woodward et al. 2019) from the Project. Potential LSE identified for both the breeding and non-breeding seasons.
- ✖i

Species classified as very low sensitivity to disturbance and displacement (SNCBs, 2022), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to species not remaining in significant numbers within Scottish marine areas (NatureScot, 2023), therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.
- ✖j

No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✔k

LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔l

The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- ✔m

Moderate sensitivity to disturbance and displacement from operation and maintenance activities (SNCBs, 2022) associated with the Project area, though potential for an effect only during the non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). However, during the non-breeding season connectivity limited due to mixing of wider North Sea populations and, therefore, any effect is likely to be immaterial, though screened in on a precautionary basis.

✖n Fulmar classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- ✔o Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) though potential connectivity limited to the breeding season. Potential for LSE concluded.
- ✖p A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.
- ✔q LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✔r Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE concluded.

Indirect impacts due to effects on prey species and habitats

- ✖s Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.
- ✖t No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Entanglement

- ✖u For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.
- ✔v Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.

In-combination

- ✖w No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔x Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: The Shiant Isles SPA

Name of Designated Site	Shiant Isles SPA																	
EU Code	UK9001041																	
Distance to Project	321.09km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Direct disturbance and displacement			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Greenland barnacle goose (non-breeding) ⁵⁴																		
Razorbill (breeding) ⁵⁵																		
Puffin (breeding) ⁵⁵																		
Shag (breeding) ⁵⁵																		
Seabird assemblage (breeding)	*a	*a	*a	*e	*e	*e		*j		*k	*k	*k		*m		*n	*n	*n
Kittiwake (breeding, CoSA) ⁵⁵																		
Guillemot (breeding, CoSA) ⁵⁵																		
Fulmar (breeding, CoSA)	*b	*c	*d	*f	*g	*h		*j		*l	*l	*l		*m		*n	*n	*n

Evidence supporting conclusions

Direct habitat loss

- *aNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- *bDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on fulmar given the distance between the colony and the Project footprint. The foraging range of fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.

⁵⁴ Non-seabird species with no connectivity to the OAA.
⁵⁵ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

- ✖cDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 321 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging range of fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- ✖dThe impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Distributional responses

- ✖eNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖fThe construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✖gFulmar classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.
- ✖hThe impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Collision risk

- ✖iA species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.
- ✖jNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Indirect impacts due to effects on prey species and habitats

- ✖kNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖lPrey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

Entanglement

- ✖mFor surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- ✖nNo potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: North Rona and Sula Sgeir SPA

Name of Designated Site	North Rona and Sula Sgeir SPA																	
EU Code	UK9001011																	
Distance to Project	308.32km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Guillemot (breeding) ⁵⁶																		
Storm-petrel (breeding)	*a	*b	*c	*e	*f	*g		*j		*l	*l	*l		*n		*o	*o	*o
Leach’s storm-petrel (breeding)	*a	*b	*c	*e	*f	*g		*j		*l	*l	*l		*n		*o	*o	*o
Gannet (breeding) ⁵⁷																		
Seabird assemblage (breeding)	*d	*d	*d	*h	*h	*h		*k		*m	*m	*m		*n		*o	*o	*o
Kittiwake (breeding, CoSA) ⁵⁶																		
Great black-backed gull (breeding, CoSA) ⁵⁶																		
Razorbill (breeding, CoSA) ⁵⁶																		
Puffin (breeding, CoSA) ⁵⁶																		
Fulmar (breeding, CoSA)	*a	*b	*c	*e	*i	*g		*j		*l	*l	*l		*n		*o	*o	*o

⁵⁶ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.
⁵⁷ Gannet screened out due to space partitioning behaviour (Wakefield et al., 2013).

Evidence supporting conclusions

Direct habitat loss

- *a During the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on storm-petrel, Leach’s storm-petrel and fulmar given the distance between the colony and the Project footprint. The foraging range of storm-petrel, Leach’s storm-petrel and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *b During the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 308 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of storm-petrel, Leach’s storm-petrel and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- *c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- *d No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional responses

- *e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- *f Species classified as very low sensitivity to disturbance and displacement (SNCBs, 2022), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to species not remaining in significant numbers within Scottish marine areas (NatureScot, 2023), therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.
- *g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- *h No LSE concluded for components of the seabird assemblage, therefore LSE not concluded for the seabird assemblage.
- *i Fulmar classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore the displacement of this species from the project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- *j A species that flies low to the water with low to very low risk of collision from the project (Bradbury et al. 2014). No LSE identified.
- *k No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Indirect impacts due to effects on prey species and habitats

- *l Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.
- *m No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Entanglement

×n For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

×o No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Fetlar SPA

Name of Designated Site	Fetlar SPA																	
EU Code	UK9002031																	
Distance to Project	239.02km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Arctic tern (breeding) ⁵⁸																		
Great skua (breeding)	*a	*b	*c	*e	*f	*g		✓j		*m	*m	*m		*o		*p	✓q	*p
Whimbrel (breeding) ⁵⁹																		
Dunlin (breeding) ⁵⁹																		
Red-necked phalarope (breeding) ⁵⁹																		
Seabird assemblage (breeding)	*d	*d	*d	*h	*h	*h		*k		*n	*n	*n		*o		*p	*p	*p
Arctic skua (breeding, CoSA) ⁵⁸																		
Fulmar (breeding, CoSA)	*a	*b	*c	*e	*i	*g		*l		*m	*m	*m		*o		*p	*p	*p

Evidence supporting conclusions

Direct habitat loss

*a During the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on great skua and fulmar given the distance between the colony and the Project footprint. The foraging range of great skua and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.

⁵⁸ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.
⁵⁹ Non-seabird species with no connectivity to the OAA.

- ✖b During the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 239 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of great skua and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- ✖c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- ✖d No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional responses

- ✖e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✖f Great skua classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 931.2km (Woodward et al. 2019), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season no connectivity is expected due to species considered to migrate up to a maximum of 60km off the coastline (WWT Consulting, 2014). LSE can be ruled out.
- ✖g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- ✖h No LSE concluded for components of the seabird assemblage, therefore LSE not concluded for the seabird assemblage.
- ✖i Fulmar classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore the displacement of this species from the project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- ✔j Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) though potential connectivity limited to the breeding season. Potential for LSE concluded.
- ✖k LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✖l A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- ✖m Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.
- ✖n LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.

Entanglement

- ✖o For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- *pNo potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✓qWhere potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Hermaness, Saxa Vord and Valla Field SPA

Name of Designated Site	Hermaness, Saxa Vord and Valla Field SPA																	
EU Code	UK9002011																	
Distance to Project	259.03km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Great skua (breeding)	*a	*b	*c	*e	*f	*g		✓m		*q	*q	*q		*s		*u	✓v	*u
Puffin (breeding)	*a	*b	*c	*e	✓h	*g		*n		*q	*q	*q		✓t		*u	✓v	*u
Red-throated diver (breeding) ⁶⁰																		
Gannet (breeding)	*a	*b	*c	*e	✓i	*g		✓o		*q	*q	*q		✓t		*u	✓v	*u
Seabird assemblage (breeding)	*d	*d	*d	*f	✓j	*f		✓p		*r	*r	*r		✓t		*u	✓v	*u
Kittiwake (breeding, CoSA)	*a	*b	*c	*e	✓k	*g		✓o		*q	*q	*q		*s		*u	✓v	*u
Guillemot (breeding, CoSA) ⁶⁰																		
Shag (breeding, CoSA) ⁶⁰																		
Fulmar (breeding, CoSA)	*a	*b	*c	*e	*l	*g		*n		*q	*q	*q		*s		*u	*u	*u

Evidence supporting conclusions

Direct habitat loss

- *aDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on great skua, puffin, gannet, kittiwake and fulmar given the distance between the colony and the Project footprint. The foraging range of great skua, puffin, gannet, kittiwake and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *bDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in

⁶⁰ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

- which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 259 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of great skua, puffin, gannet, kittiwake and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- *c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
 - *d No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional responses

- *e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- *f Great skua classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 931.2km (Woodward et al. 2019), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season no connectivity is expected due to species considered to migrate up to a maximum of 60km off the coastline (WWT Consulting, 2014). LSE can be ruled out.
- *g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- ✓h Moderate sensitivity to disturbance and displacement from operation and maintenance activities (SNCBs, 2022) associated with the Project area, though potential for an effect only during non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). However, during the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial, though screened in on a precautionary basis.
- ✓i Strong and consistent avoidance of operation and maintenance activities (Dierschke et al. 2016) within Project OAA leading to potential LSE identified during both breeding and non-breeding seasons for disturbance and displacement.
- ✓j LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✓k The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- *l Fulmar classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore the displacement of this species from the project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- ✓m Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) though potential connectivity limited to the breeding season. Potential for LSE concluded.
- *n A species that flies low to the water with low to very low risk of collision from the project (Bradbury et al. 2014). No LSE identified.
- ✓o Species recorded within site-specific surveys within the project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) during both the breeding and non-breeding seasons. Potential for LSE.
- ✓p LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.

Indirect impacts due to effects on prey species and habitats

- ✖q

Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.
- ✖r

No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Entanglement

- ✖s

For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.
- ✔t

Direct entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.

In-combination

- ✖u

No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✔v

Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Flannan Isles SPA

Name of Designated Site	Flannan Isles SPA																	
EU Code	UK9001021																	
Distance to Project	391.33km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Leach’s storm-petrel (breeding)	*a	*b	*c	*e	*f	*g		*j		*l	*l	*l		*n		*p	*p	*p
Seabird assemblage (breeding)	*d	*d	*d	*h	*h	*h		*k		*m	*m	*m		*o		*p	*p	*p
Kittiwake (breeding, CoSA) ⁶¹																		
Guillemot (breeding, CoSA) ⁶¹																		
Razorbill (breeding, CoSA) ⁶¹																		
Puffin (breeding, CoSA) ⁶¹																		
Fulmar (breeding, CoSA)	*a	*b	*c	*e	*i	*g		*j		*l	*l	*l		*n		*p	*p	*p

Evidence supporting conclusions

Direct habitat loss

- *aDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on Leach’s storm-petrel and fulmar given the distance between the colony and the Project footprint. The foraging range of Leach’s storm-petrel and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *bDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 391 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given

⁶¹ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

the very small footprint of habitat loss during the operational phase, the foraging ranges of Leach's storm-petrel and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.

*c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

*d No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional responses

*e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.

*f Species identified as showing weak attraction / no response to the presence of offshore wind farms (Dierschke et al. 2016), therefore, species can be considered not sensitive to operational and maintenance disturbance and displacement activities. Therefore, LSE can be ruled out.

*g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.

*h No LSE concluded for components of the seabird assemblage, therefore LSE not concluded for the seabird assemblage.

*i Fulmar classified as very low sensitivity to disturbance and displacement (Bradbury et al. 2014) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore the displacement of this species from the project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

*j A species that flies low to the water with low to very low risk of collision from the project (Bradbury et al. 2014). No LSE identified.

*k No LSE concluded for components of the seabird assemblage, therefore LSE not concluded for the seabird assemblage.

Indirect impacts due to effects on prey species and habitats

*l Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

*m No LSE concluded for components of the seabird assemblage, therefore LSE not concluded for the seabird assemblage.

Entanglement

*n For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

*o No LSE concluded for components of the seabird assemblage, therefore LSE not concluded for the seabird assemblage.

In-combination

*p No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Flamborough & Filey Coast SPA

Name of Designated Site	Flamborough and Filey Coast SPA																	
EU Code	UK9006101																	
Distance to Project	417.31km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Kittiwake (breeding)	*a	*b	*c	*e	✓f	*g		✓m		*p	*p	*p		*r		*t	✓u	*t
Guillemot (breeding) ⁶²																		
Razorbill (breeding)	*a	*b	*c	*e	✓h	*g		*n		*p	*p	*p		✓s		*t	✓u	*t
Gannet (breeding)	*a	*b	*c	*e	✓i	*g		✓m		*p	*p	*p		✓s		*t	✓u	*t
Seabird assemblage (breeding)	*d	*d	*d	*e	✓j	*g		✓o		*q	*q	*q		✓s		*t	✓u	*t
Herring gull (breeding, CoSA)	*a	*b	*c	*e	*k	*g		✓m		*p	*p	*p		*r		*t	✓u	*t
Puffin (breeding, CoSA) ⁶²																		
Fulmar (breeding, CoSA)	*a	*b	*c	*e	*l	*g		*n		*p	*p	*p		*r		*t	*t	*t
Cormorant (breeding, CoSA) ⁶²																		
Shag (breeding, CoSA) ⁶²																		

Evidence supporting conclusions

Direct habitat loss

*a During the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on kittiwake, razorbill, gannet, herring gull and fulmar given the distance between the colony and the Project footprint. The foraging range of kittiwake, razorbill, gannet, herring gull and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.

⁶² OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

- *b During the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 417 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of kittiwake, razorbill, gannet, herring gull and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- *c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- *d No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional responses

- *e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✓f The current SNCB’s joint guidance note (SNCBs, 2022) states; ‘as a general guide, any species scoring 3 or more under either category (‘Disturbance Susceptibility’ or ‘Habitat Specialization’), and which is present in the OWF site or buffer should be progressed to the matrix stage unless there is strong empirical evidence to the contrary’. Kittiwake is classified as having a low sensitivity to disturbance with a score of 2 (SNCBs, 2022), there is currently no strong empirical evidence to the contrary to suggest otherwise. Indeed, studies support the conclusions of low sensitivity to disturbance such as the post-construction monitoring of the Beatrice OWF over two years (MacArthur Green (2021 and 2023) which showed no indication of a displacement effect on kittiwakes. Other post-construction monitoring studies that have concluded no indication of any significant displacement caused by the wind farm, include Thanet (Royal Haskoning, 2013), Westernmost Rough (APEM, 2017) and Greater Gabbard (ESS Ecology 2015). Indeed, the most recent study to date in Scottish waters indicated there was no clear evidence that kittiwakes were altering their behaviour to operational wind farms (O’Hanlon et al., 2024). However, kittiwake has been screened in for LSE (for both the breeding and non-breeding seasons) following current advice in the NatureScot Guidance Note 8 (NatureScot, 2023) with the Applicant welcoming further discussion.
- *g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- ✓h Moderate sensitivity to disturbance and displacement from operation and maintenance activities (SNCBs, 2022) associated with the Project area, though potential for an effect only during non-breeding season due to the Project OAA being outwith of the species mean max plus one SD foraging range (Woodward et al. 2019). However, during the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial, though screened in on a precautionary basis.
- ✓i Strong and consistent avoidance of operation and maintenance activities (Dierschke et al. 2016) within Project OAA leading to potential LSE identified though limited to the non-breeding seasons due to consideration of gannet space partitioning (Wakefield et al., 2013).
- ✓j LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- *k Species identified as showing weak attraction / no response to the presence of offshore wind farms (Dierschke et al. 2016), therefore, species can be considered not sensitive to operational and maintenance disturbance and displacement activities. Therefore, LSE can be ruled out.
- *l Fulmar classified as very low sensitivity to disturbance and displacement (Bradbury et al. 2014) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore the displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- ✓m Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) though potential connectivity limited to the non-breeding season. Potential for LSE concluded.
- *n A species that flies low to the water with low to very low risk of collision from the project (Bradbury et al. 2014). No LSE identified.
- ✓o LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.

Indirect impacts due to effects on prey species and habitats

- *pPrey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.
- *qNo LSE concluded for components of the seabird assemblage, therefore LSE not concluded for the seabird assemblage.

Entanglement

- *rFor surface feeding non-diving birds no LSE can be concluded based on no impact pathway.
- ✓sDirect entanglement risk is thought to be unlikely due to the design parameters, with the mooring lines being under tension and the dimensions of the chain reducing the likelihood of entanglement to be highly unlikely. Entangled fishing gear on the mooring lines may increase the extent infrastructure will act as a fish aggregation device (FAD) along with the risk of indirect entanglement by diving birds within entangled netting within the OAA. LSE cannot be excluded for any diving bird feature for this impact pathway during this operational of the Project.

In-combination

- *tNo potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.
- ✓uWhere potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: St. Kilda SPA

Name of Designated Site	St Kilda SPA																	
EU Code	UK9001031																	
Distance to Project	447.31km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Great skua (breeding)	*a	*b	*c	*e	*f	*g		✓k		*n	*n	*n	*p	*p	*p	*r	✓s	*r
Storm-petrel (breeding) ⁶³																		
Leach’s storm-petrel (breeding)	*a	*b	*c	*e	*h	*g		*l		*n	*n	*n	*p	*p	*p	*r	*r	*r
Puffin (breeding) ⁶³																		
Gannet (breeding) ⁶⁴																		
Seabird assemblage (breeding)	*d	*d	*d	*i	*i	*i		✓m		*o	*o	*o	*q	*q	*q	*r	✓s	*r
Kittiwake (breeding, CoSA) ⁶³																		
Guillemot (breeding, CoSA) ⁶³																		
Razorbill (breeding, CoSA) ⁶³																		
Fulmar (breeding, CoSA)	*a	*b	*c	*e	*j	*g		*l		*n	*n	*n	*p	*p	*p	*r	*r	*r
Manx shearwater (breeding, CoSA) ⁶⁵																		

⁶³ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

⁶⁴ Gannet screened out due to space partitioning behaviour (Wakefield et al., 2013).

⁶⁵ Very low numbers of Manx shearwater were recorded during the site-specific aerial surveys. Records comprised of two individuals in July 2022 (i) and a single individual in July 2022 (ii) (all within the OAA), resulting in an abundance estimate of 16 and 8, respectively. Therefore, this feature has been screened out due to a negligible potential for LSE.

Evidence supporting conclusions

Direct habitat loss

- ✖a During the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on great skua, Leach’s storm-petrel and fulmar given the distance between the colony and the Project footprint. The foraging range of great skua, Leach’s storm-petrel and fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- ✖b During the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 447 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given the very small footprint of habitat loss during the operational phase, the foraging ranges of great skua, Leach’s storm-petrel and fulmar are such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- ✖c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.
- ✖d No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Distributional responses

- ✖e The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out. Great skua classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 931.2km (Woodward et al. 2019), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season species is expected to migrate within the UK western waters rather than the North Sea given the location of the SPA (Furness 2015), therefore no connectivity during the non-breeding season. LSE can be ruled out.
- ✖f Great skua classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 931.2km (Woodward et al. 2019), Therefore displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season species is expected to migrate within the UK western waters rather than the North Sea given the location of the SPA (Furness 2015), therefore no connectivity during the non-breeding season. LSE can be ruled out.
- ✖g The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.
- ✖h Species identified as showing weak attraction / no response to the presence of offshore wind farms (Dierschke et al. 2016), therefore, species can be considered not sensitive to operational and maintenance disturbance and displacement activities. Therefore, LSE can be ruled out.
- ✖i No LSE concluded for components of the seabird assemblage, therefore LSE not concluded for the seabird assemblage.
- ✖j Fulmar classified as very low sensitivity to disturbance and displacement (SNCBs, 2022) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore the displacement of this species from the project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.

Collision risk

- ✔k Species recorded within site-specific surveys within the Project OAA and known to fly at potential collision height (PCH; Johnston et al. 2014) though potential connectivity limited to the breeding season. Potential for LSE concluded.
- ✖l A species that flies low to the water with low to very low risk of collision from the project (Bradbury et al. 2014). No LSE identified.
- ✔m LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage

Indirect impacts due to effects on prey species and habitats

- ✖n

Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.
- ✖o

No LSE concluded for components of the seabird assemblage, therefore LSE not concluded for the seabird assemblage.

Entanglement

- ✖p

For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.
- ✖q

No LSE concluded for components of the seabird assemblage, therefore LSE not concluded for the seabird assemblage.

In-combination

- ✖r

No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified. Where potential for LSE has been concluded alone, potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Offshore Ornithology HRA Screening Matrix: Mingulay and Berneray SPA

Name of Designated Site	Mingulay and Berneray SPA																	
EU Code	UK9001121																	
Distance to Project	427.39km																	
Likely Effects of Project																		
Effect	Direct habitat loss			Distributional responses			Collision risk			Indirect impacts due to effects on prey species and habitats			Entanglement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Razorbill (breeding) ⁶⁶																		
Seabird assemblage (breeding)	*a	*a	*a	*e	*e	*e		*i		*k	*k	*k		*m		*o	*o	*o
Kittiwake (breeding, CoSA) ⁶⁶																		
Guillemot (breeding, CoSA) ⁶⁶																		
Puffin (breeding, CoSA) ⁶⁶																		
Fulmar (breeding, CoSA)	*b	*c	*d	*f	*g	*h		*j		*l	*l	*l		*n		*o	*o	*o
Shag (breeding, CoSA) ⁶⁶																		

Evidence supporting conclusions

Direct habitat loss

- *aNo LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- *bDuring the construction phase, habitat loss is generally temporary and short-lived, and is unlikely to have effects on fulmar given the distance between the colony and the Project footprint. The foraging range of fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. loafing / bathing) on a temporary basis. As such, in this phase of the Project LSE can be excluded for these features during the breeding and non-breeding seasons.
- *cDuring the operational phase of the Project, habitat loss / change in the OAA may become permanent or long-term in nature, as structures such as WTG mooring anchors will remain in place throughout the lifetime of the Project. The WTGs are floating structures therefore access to prey in the water column beneath the WTGs would remain available to diving seabirds. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or sea surface) would be negligible in the context of the foraging ranges of breeding colony seabird features that may be present in and around the OAA (which is located 427 km from the breeding colony SPA). On this basis, it is considered that the potential for LSE on breeding seabird populations can be excluded as actual habitat loss will be negligible in nature. Given

⁶⁶ OAA lies outwith of the feature MM+SD foraging range. Therefore, this feature has been screened out due to a lack of connectivity.

- the very small footprint of habitat loss during the operational phase, the foraging range of fulmar is such that sufficient alternative marine habitat is available for foraging and for other functions (e.g. roosting / loafing). As such, a LSE can be excluded for these features in both the breeding and non-breeding seasons.
- ✖d The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Distributional responses

- ✖e No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖f The construction phase has the potential to affect birds in the marine environment through disturbance due to activities, including the installation of anchors, connection of floating structures, export cable laying and the movement of associated vessels en-route to / from the footprint of the Project. During installation of anchors there is limited use of large offshore construction vessels at the development site and none of the extensive piling operations associated with fixed bottom WTGs. Construction noise associated with installation of anchors is, therefore, substantially lower and both its duration and the distance of disturbance are also considered to be considerably shorter. Any impacts resulting from disturbance and displacement from these installation activities are considered to be short-term, temporary and reversible in nature, lasting only for the duration of the activity, as birds would return to the area once activities have ceased therefore, a LSE can be ruled out.
- ✖g Fulmar classified as very low sensitivity to disturbance and displacement (Bradbury et al. 2014) and is known to have an exceptionally large mean max plus one SD foraging range of 1,200.2km (Woodward et al. 2019), Therefore the displacement of this species from the Project OAA during the breeding season is unlikely to cause a material effect. During the non-breeding season connectivity limited due to mixing of wider North Sea populations and therefore any effect is likely to be immaterial. Therefore, LSE can be ruled out.
- ✖h The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a finding of no potential LSE is appropriate.

Collision risk

- ✖i No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.
- ✖j A species that flies low to the water with low to very low risk of collision from the Project (Bradbury et al. 2014). No LSE identified.

Indirect impacts due to effects on prey species and habitats

- ✖k No LSE concluded for components of the seabird assemblage, therefore LSE not concluded for the seabird assemblage.
- ✖l Prey species could be affected by changes to water quality, suspended sediment, underwater noise, direct habitat loss or damage, changes to physical processes and INNS. Indirect impacts on species could result due to displaced or reduced foraging resource. The pathway to effects due to insufficient prey resource is weak for these highly mobile receptors. Temporary and low-impact effects are anticipated for local fish and benthic ecology associated with the Project area only. As such, there would be sufficient alternative resource available to support the species population, especially given the distance from the colony to the Project area and being outwith of the expected core foraging range of the majority of species from this colony. Consequently, no LSE can be concluded.

Entanglement

- ✖m No LSE concluded for components of the seabird assemblage, therefore LSE not concluded for the seabird assemblage.
- ✖n For surface feeding non-diving birds no LSE can be concluded based on no impact pathway.

In-combination

- ✖o No potential for LSE has been concluded for this impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Intertidal Ornithology Screening Matrices

Intertidal Ornithology HRA Screening Matrix: Landfall Zone at Scotstown associated with Buchan Ness to Collieston Coast SPA

Name of Designated site	Buchan Ness to Collieston Coast SPA								
EU Code	UK9002491								
Distance to Landfall Zone Scotstown	8.31km								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Kittiwake (CoSA)	*a	*b	*c	*d	*f	*g	*i	*k	*l
Herring gull (CoSA)	*a	*b	*c	*d	*f	*g	*i	*k	*l
Guillemot (CoSA)	*a	*b	*c	✓e	*f	✓h	✓m	*k	✓m
Fulmar (CoSA)	*a	*b	*c	*d	*f	*g	*i	*k	*l
Shag (CoSA)	*a	*b	*c	✓e	*f	✓h	✓m	*k	*l
Seabird assemblage (breeding)	*a	*b	*c	✓e	*f	✓h	✓m	*k	✓m

Evidence supporting conclusions

Direct temporary habitat loss

- ✱a Important numbers of SPA herring gulls were recorded during the intertidal bird surveys, with a peak count of 260 in early May 2023, equating to approximately 3.0% of the SPA population (JNCC, 2015). Particular concentrations were recorded roosting along an area of rocky coastline c. 380m to the south-east of the Landfall Zone, as well as in the nearshore habitat. While herring gulls will make use of a range of habitats, none were recorded within the sandy habitat of the proposed Landfall Zone. Given that extensive suitable habitat is present elsewhere along the coast in areas functionally linked to the SPA, and when considering the limited temporal and spatial extent of the construction phase, no potential for LSE is considered.

Similarly, shags were present at Landfall Zone Scotstown in important numbers during the surveys in the same areas, with a peak count of 820 in August 2023 (approximately 39.2% of the SPA population (JNCC, 2015)). The Landfall Zone is entirely comprised of sandy habitat and shag favour rocky shoreline and inshore waters, reflecting the location of the records. The only records of shag landward of mean low water springs (MLWS) during the 12 monthly intertidal surveys were on the rocks c. 380m to the south-east of the Landfall Zone. Therefore, given the location of these record and the actual breeding colony itself being suitably distant from the Landfall Zone, no potential for LSE is considered.

Guillemots were also recorded in important SPA numbers but in the nearshore habitat seaward of MLWS, with a peak count of 230 in the same month equating to approximately 1.3% of the SPA population (JNCC, 2015). Guillemots were recorded exclusively in the nearshore habitat during the intertidal surveys, with none present landward of MLWS. Therefore, given the location of these record and the actual breeding colony itself being suitably distant from the Landfall Zone, no potential for LSE is considered.

No other Buchan Ness to Collieston Coast SPA qualifying features were recorded in important numbers during the surveys. Therefore, no potential for LSE is considered.

- ✱b During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✱c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Direct temporary disturbance and displacement

- ✱d During the intertidal bird surveys, herring gulls were recorded in important numbers with a peak count of 260 in early May 2023, equating to approximately 3.0% of the SPA population (JNCC, 2015). Particular concentrations were recorded roosting along an area of rocky coastline c.

380m to the south-east of the Landfall Zone, as well as in the nearshore habitat. While limited data on herring gull disturbance distances are available, Garthe and Hüppop (2004) ranked the species at two out of five for disturbance sensitivity to ship and helicopter traffic. This, in conjunction with professional judgement regarding herring gull tolerance to human disturbance within urban habitats in which they are commonly found, indicates that the potential for LSE at these distances can be ruled out.

- ✓e Shags were present at Landfall Zone Scotstown in important SPA numbers during the surveys in the same areas, with a peak count of 820 in August 2023 (approximately 39.2% of the SPA population (JNCC, 2015)). Jarrett *et al.* (2018) report that shag have very low response and flight rates within the 200-300m distance band from marine disturbance events. Of the 820 individuals recorded during the August 2023 survey, 30 were present within 200m of the proposed Landfall Zone location, equating to 1.4% of the SPA population. Therefore, LSE cannot be ruled out.

Guillemots were also recorded in important SPA numbers in the nearshore habitats seaward of MLWS, with a peak count of 230 in August 2023 equating to approximately 1.3% of the SPA population (JNCC, 2015). Give the species' low tolerance to disturbance, LSE cannot be ruled out.

LSE cannot be ruled out for components of the seabird assemblage. Therefore, LSE for the seabird assemblage is considered.

- ✗d No additional Buchan Ness to Collieston Coast SPA qualifying features were recorded in important numbers during the surveys. There, no potential for LSE is considered.
- ✗f During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✗g The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.
- ✓h The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of potential for LSE is appropriate.

In-combination

- ✗i No potential for LSE has been concluded for any impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect. Furthermore, when considering the construction phase will be both spatially and temporally restricted, the potential for any in-combination effect with other coastal developments can be considered unlikely. Therefore, LSE can be ruled out for in-combination effects.

- ✖j LSE has been concluded from an impact pathway from the Project alone. However, when considering the construction phase will be both spatially and temporally restricted, the potential for any in-combination effect with other coastal developments can be considered unlikely. Therefore, LSE can be ruled out for in-combination effects.
- ✖k During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✖l The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.
- ✔m Although the likelihood for any in-combination effects to occur is low given the spatial and temporal restriction of any works during the construction / decommissioning phase, due to the uncertainty regarding other projects construction timeframes and the potential for LSE has been concluded alone, potential for LSE has been concluded in-combination on a precautionary basis.

Intertidal Ornithology HRA Screening Matrix: Landfall Zone at Lunderton associated with Buchan Ness to Collieston Coast SPA

Name of Designated site	Buchan Ness to Collieston Coast SPA								
EU Code	UK9002491								
Distance to Landfall Zone Lunderton	4.62km								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Kittiwake (CoSA)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Herring gull (CoSA)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Guillemot (CoSA)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Fulmar (CoSA)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Shag (CoSA)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Seabird assemblage (breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i

Evidence supporting conclusions

Direct temporary habitat loss

- ✕a Important numbers of shag were recorded at Landfall Zone Lunderton during the intertidal surveys, with a peak count of 236 individuals in August 2023 (approximately 11.3% of the SPA population (JNCC, 2015)). However, records were strongly associated with the rocky coastline c. 300m south-east of the Landfall Zone, as well as the nearshore habitat seaward of MLWS. The Landfall Zone is entirely comprised of sandy habitat, and shag favour rocky shoreline and inshore waters, reflecting the location of the records. The only records of shag landward of mean low water springs (MLWS) during the 12 monthly intertidal surveys were on the rocks c. 300m to the south-east of the Landfall Zone. Therefore, no potential for LSE is considered.

No additional Buchan Ness to Collieston Coast SPA qualifying features were recorded in important numbers at Landfall Zone Lunderton during the intertidal surveys. Therefore, no potential for LSE is considered.
- ✕b During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✕c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Direct temporary disturbance and displacement

- ✕d Important numbers of shag were recorded at Landfall Zone Lunderton during the intertidal surveys, with a peak count of 236 individuals in August 2023 (approximately 11.3% of the SPA population (JNCC, 2015)). However, records were strongly associated with the rocky coastline c. 300m south-east of the Landfall Zone, as well as the nearshore habitat. Jarrett *et al.* (2018) report that shag have very low response and flight rates within the 200-300m distance band from marine disturbance events. There were no records of shag within 200m of the proposed Landfall Zone location during the 12 monthly intertidal surveys. Therefore, given the high tolerance of shag to disturbance beyond 200m, coupled with the limited spatial and temporal extent of the proposed works, a conclusion of no LSE is considered appropriate.

No additional Buchan Ness to Collieston Coast SPA qualifying features were recorded in important numbers at Landfall Zone Lunderton during the intertidal surveys. Therefore, a finding of no LSE is appropriate.
- ✕e During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✕f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

In-combination

- *g No potential for LSE has been concluded for any impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect. Furthermore, when considering the construction phase will be both spatially and temporally restricted, the potential for any in-combination effect with other coastal developments can be considered unlikely. Therefore, LSE can be ruled out for in-combination effects.
- *h During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- *i The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Intertidal Ornithology HRA Screening Matrix: Landfall Zone at Sandford Bay associated with Buchan Ness to Collieston Coast SPA

Name of Designated site	Buchan Ness to Collieston Coast SPA								
EU Code	UK9002491								
Distance to Landfall Zone Sandford Bay	Overlaps								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Kittiwake (CoSA)	*a	*c	*d	*h	*i	*j	*o	*p	*q
Herring gull (CoSA)	✓b	*c	✓e	✓k	*i	✓l	✓r	*p	✓r
Guillemot (CoSA)	*a	*c	*d	*h	*i	*j	*o	*p	*q
Fulmar (CoSA)	*a	*c	*d	*h	*i	*j	*o	*p	*q
Shag (CoSA)	*a	*c	*d	*h	*i	*j	*o	*p	*q
Seabird assemblage (breeding)	✓f	*g	✓f	✓m	*n	✓m	✓r	*p	✓r

Evidence supporting conclusions

Direct temporary habitat loss

- ✖a None of these features were recorded as present in important numbers during the intertidal bird surveys. Therefore, LSE can be ruled out.
- ✔b The intertidal bird surveys recorded important numbers of herring gulls, with a peak count of 351 in March 2023, equivalent to approximately 4.1% of the SPA population (JNCC, 2015). High numbers were recorded roosting along the low water mark during the breeding season. Despite the limited temporal and spatial extent of the construction phase, due to the number of birds recorded in conjunction with the Landfall Zone overlap and potential for works to be undertaken within the SPA boundary, this feature has been screened in on a precautionary basis. Potential for LSE is concluded.
- ✖c During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✖d The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.
- ✔e The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of potential for LSE is appropriate.
- ✔f LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✖g No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

Direct temporary disturbance and displacement

- ✖h None of these features were recorded as present in important numbers during the intertidal bird surveys. Therefore, LSE can be ruled out.
- ✖i During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✖j The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.
- ✔k The intertidal bird surveys recorded important numbers of herring gulls, with a peak count of 351 in March 2023, equivalent to approximately 4.1% of the SPA population (JNCC, 2015). High numbers were recorded roosting along the low water mark during the breeding season. While limited data on herring gull disturbance distances are available, Garthe and Hüppop (2004) ranked the species at two out of five for disturbance

sensitivity to ship and helicopter traffic. However, due to the number of birds recorded in conjunction with the Landfall Zone overlap and potential for works to be undertaken within the SPA boundary, this feature has been screened in on a precautionary basis. Potential for LSE.

- ✓l The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of potential for LSE is appropriate.
- ✓m LSE concluded for components of the seabird assemblage, therefore LSE concluded for the seabird assemblage.
- ✗n No LSE concluded for all of the components of the seabird assemblage. Therefore, no LSE identified.

In-combination

- ✗o No potential for LSE has been concluded for any impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect. Furthermore, when considering the construction phase will be both spatially and temporally restricted, the potential for any in-combination effect with other coastal developments can be considered unlikely. Therefore, LSE can be ruled out for in-combination effects.
- ✗p During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✗q The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.
- ✓r Although the likelihood for any in-combination effects to occur is low given the spatial and temporal restriction of any works during the construction / decommissioning phase, due to the uncertainty regarding other projects construction timeframes and the potential for LSE has been concluded alone, potential for LSE has been concluded in-combination on a precautionary basis.

Intertidal HRA Screening Matrix: Landfall Zone at Scotstown associated with Loch of Strathbeg SPA / Ramsar

Name of Designated site	Loch of Strathbeg SPA / Ramsar								
EU Code	UK9002211								
Distance to Landfall Zone Scotstown	5.06km								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Svalbard barnacle goose (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Greylag goose (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Pink-footed goose (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Whooper swan (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Sandwich tern (breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Waterfowl assemblage (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Teal (CoWA)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Goldeneye (CoWA)	*a	*b	*c	*d	*e	*f	*g	*h	*i

Evidence supporting conclusions

Direct temporary habitat loss

- ✕a The Loch of Strathbeg SPA/ Ramsar qualifying features are limited to wildfowl species with the exception of Sandwich tern. None of the wildfowl qualifying features were recorded in nationally important numbers at Landfall Zone Scotstown during the intertidal surveys.

Sandwich terns were present in important numbers in the breeding season, with a peak count of 70 in June 2023 equating to approximately 12.5% of the SPA population (JNCC, 2019). However, the majority of records were of birds roosting on the rocky coastline c. 380m to the south-east of the Landfall Zone. Sandwich terns were also recorded loafing and foraging in the nearshore habitat, with a peak count of 27 in this area in late-May 2023, equating to 4.8% of the SPA population. There were no Sandwich terns recorded using the sandy beach habitat in which the proposed Landfall Zone is located. The distance of the records from the Landfall Zone, coupled with the limited temporal and spatial footprint of the construction phase, results in a finding of no potential for LSE.
- ✕b During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✕c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate.

Direct temporary disturbance and displacement

- ✕d The Loch of Strathbeg SPA/ Ramsar qualifying features are limited to wildfowl species with the exception of Sandwich tern. None of the wildfowl qualifying features were recorded in nationally important numbers at Landfall Zone Scotstown during the intertidal surveys.

Sandwich terns were present in important numbers in the breeding season, with a peak count of 70 in June 2023 equating to approximately 12.5% of the SPA population (JNCC, 2015). However, the majority of records were of birds roosting on the rocky coastline c. 380m to the south-east of the Landfall Zone. Sandwich terns were also recorded loafing and foraging in the nearshore habitat, with a peak count of 27 in this area in late-May 2023, equating to 4.8% of the SPA population. There were no Sandwich terns recorded using the sandy beach habitat in which the proposed Landfall Zone is located. Given the location of the records, coupled with the limited temporal and spatial footprint of the construction phase, results in a finding of no potential for LSE.
- ✕e During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✕f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate.

In-combination

- *g No potential for LSE has been concluded for any impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect. Furthermore, when considering the construction phase will be both spatially and temporally restricted, the potential for any in-combination effect with other coastal developments can be considered unlikely. Therefore, LSE can be ruled out for in-combination effects.
- *h During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- *i The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Intertidal Ornithology HRA Screening Matrix: Landfall Zone at Lunderton associated with Loch of Strathbeg SPA / Ramsar

Name of Designated site	Loch of Strathbeg SPA / Ramsar								
EU Code	UK9002211								
Distance to Landfall Zone Lunderton	8.08km								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Svalbard barnacle goose (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Greylag goose (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Pink-footed goose (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Whooper swan (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Sandwich tern (breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Waterfowl assemblage (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Teal (CoWA)	*a	*b	*c	*d	*e	*f	*g	*h	*i

Name of Designated site	Loch of Strathbeg SPA / Ramsar								
EU Code	UK9002211								
Distance to Landfall Zone Lunderton	8.08km								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Goldeneye (CoWA)	✖a	✖b	✖c	✖d	✖e	✖f	✖g	✖h	✖i

Evidence supporting conclusions

Direct temporary habitat loss

- *a The Loch of Strathbeg SPA/ Ramsar qualifying features are limited to wildfowl species with the exception of Sandwich tern. None of the wildfowl qualifying features were recorded in important numbers at Landfall Zone Lunderton during the intertidal surveys.

Sandwich terns were present in important numbers in the breeding season, with a peak count of 45 in early May 2023 equating to approximately 8.0% of the SPA population (JNCC, 2019). However, all records during the intertidal survey programme were of birds loafing and foraging in the nearshore habitat seaward of MLWS. The location of the records, coupled with the limited temporal and spatial footprint of the construction phase results in a finding of no potential for LSE.
- *b During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- *c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Direct temporary disturbance and displacement

- ✖d The Loch of Strathbeg SPA/ Ramsar qualifying features are limited to wildfowl species with the exception of Sandwich tern. None of the wildfowl qualifying features were recorded in important numbers at Landfall Zone Lunderton during the intertidal survey or further inland during wintering geese and swans surveys in 2022/23.

Sandwich terns were present in important numbers in the breeding season, with a peak count of 45 in early May 2023 equating to approximately 8.0% of the SPA population (JNCC, 2019). However, all records during the intertidal survey programme were of birds loafing and foraging in the nearshore habitat seaward of MLWS. Given the location of the records, coupled with the limited temporal and spatial footprint of the construction phase results in a finding of no potential for LSE.
- ✖e During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✖f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

In-combination

- ✖g No potential for LSE has been concluded for any impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect. Furthermore, when considering the construction phase will be both spatially and temporally restricted, the potential for any in-combination effect with other coastal developments can be considered unlikely. Therefore, LSE can be ruled out for in-combination effects.
- ✖h During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✖i The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Intertidal Ornithology HRA Screening Matrix: Landfall Zone at Sandford Bay associated with Loch of Strathbeg SPA / Ramsar

Name of Designated site	Loch of Strathbeg SPA / Ramsar								
EU Code	UK9002211								
Distance to Landfall Zone Sandford Bay	14.28km								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Svalbard barnacle goose (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Greylag goose (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Pink-footed goose (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Whooper swan (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Sandwich tern (breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Waterfowl assemblage (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*h	*i
Teal (CoWA)	*a	*b	*c	*d	*e	*f	*g	*h	*i

Name of Designated site	Loch of Strathbeg SPA / Ramsar								
EU Code	UK9002211								
Distance to Landfall Zone Sandford Bay	14.28km								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Goldeneye (CoWA)	✖a	✖b	✖c	✖d	✖e	✖f	✖g	✖h	✖i

Evidence supporting conclusions

Direct temporary habitat loss

- *a The Loch of Strathbeg SPA/ Ramsar qualifying features are limited to wildfowl species with the exception of Sandwich tern. None of the wildfowl qualifying features were recorded in important numbers at Landfall Zone Sandford Bay during the intertidal bird surveys.
- Sandwich terns were present in important numbers in the breeding season, with a peak count of 26 in early May 2023 equating to approximately 4.6% of the SPA population (JNCC, 2019). The majority of Sandwich tern records at Landfall Zone Sandford Bay were of birds roosting on an area of rocky shoreline, c. 275m east of the Landfall Zone, with small numbers recorded foraging in the nearshore habitat seaward of MLWS (a peak count of two in June 2023, equating to <15% of the SPA population). There were no records of Sandwich terns from the survey programme from within the sandy habitat in which the Landfall Zone is located. Given the location of the records, coupled with the limited temporal and spatial footprint of the construction phase results in a finding of no potential for LSE.
- *b During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.

- *c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Direct temporary disturbance and displacement

- *d The Loch of Strathbeg SPA/ Ramsar qualifying features are limited to wildfowl species with the exception of Sandwich tern. None of the wildfowl qualifying features were recorded in important numbers at Landfall Zone Sandford Bay during the intertidal bird surveys.

Sandwich terns were present in important numbers in the breeding season, with a peak count of 26 in early May 2023 equating to approximately 4.6% of the SPA population (JNCC, 2019). The majority of Sandwich tern records at Landfall Zone Sandford Bay were of birds roosting on an area of rocky shoreline, c. 275m east of the Landfall Zone, with small numbers recorded foraging in the nearshore habitat seaward of MLWS (a peak count of two in June 2023, <1% of the SPA population). Given the location of the records, coupled with the limited temporal and spatial footprint of the construction phase, there is a finding of no potential for LSE.
- *e During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- *f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

In-combination

- *g No potential for LSE has been concluded for any impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect. Furthermore, when considering the construction phase will be both spatially and temporally restricted, the potential for any in-combination effect with other coastal developments can be considered unlikely. Therefore, LSE can be ruled out for in-combination effects.
- *h During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- *i The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Intertidal Ornithology HRA Screening Matrix: Landfall Zone at Scotstown associated with Ythan, Estuary, Sands of Fovie and Meikle Loch SPA

Name of Designated site	Ythan Estuary, Sands of Forvie and Meikle Loch SPA								
EU Code	UK9002221								
Distance to Landfall Zone Scotstown	16.32km								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Pink-footed goose (non-breeding)	✕a	✕b	✕c	✕d	✕e	✕f	✕g	✕h	✕i
Sandwich tern (breeding)	✕a	✕b	✕c	✕d	✕e	✕f	✕g	✕h	✕i
Common tern (breeding)	✕a	✕b	✕c	✕d	✕e	✕f	✕g	✕h	✕i
Little tern (breeding) ⁶⁷									
Waterbird assemblage (non-breeding) ³									
Eider (CoWA) ³									

⁶⁷ Landfall Zone Scotstown lies beyond the connectivity distance for these species. Therefore, no LSE is considered.

Name of Designated site	Ythan Estuary, Sands of Forvie and Meikle Loch SPA								
EU Code	UK9002221								
Distance to Landfall Zone Scotstown	16.32km								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Lapwing (CoWA) ³									
Redshank (CoWA) ³									

Evidence support conclusions

Direct temporary habitat loss

- ✱a Of the qualifying features, only Sandwich tern were recorded in important abundances at Landfall Zone Scotstown during the intertidal surveys. Sandwich terns were recorded in important numbers in the breeding season, with a peak count of 70 in June 2023 equating to approximately 3.1% of the SPA population (JNCC, 2020). However, the majority of records were of birds roosting on the rocky coastline c. 380m to the south-east of the Landfall Zone. Sandwich terns were also recorded loafing and foraging in the nearshore habitat, with a peak count of 27 in this area in late-May 2023, equating to 1.2% of the SPA population. There were no Sandwich terns recorded using the sandy beach habitat in which the proposed Landfall Zone is located. The distance of the records from the Landfall Zone, coupled with the limited temporal and spatial footprint of the construction phase, results in a finding of no potential for LSE.
- ✱b During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.

- ✖c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate, with the exception of pink-footed geese which would be taken forward.

Direct temporary disturbance and displacement

- ✖d Of these qualifying features, only Sandwich tern were recorded in important abundances at Landfall Zone Scotstoun during the intertidal surveys. Sandwich terns were recorded in important numbers in the breeding season, with a peak count of 70 in June 2023 equating to approximately 3.1% of the SPA population (JNCC, 2020). Sandwich terns were also recorded loafing and foraging in the nearshore habitat, with a peak count of 27 in this area in late-May 2023, equating to 1.2% of the SPA population. There were no Sandwich terns recorded using the sandy beach habitat in which the proposed Landfall Zone is located. The distance of the records from the Landfall Zone, coupled with the limited temporal and spatial footprint of the construction phase, results in a finding of no potential for LSE.
- ✖e During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✖f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate.

In-combination

- ✖g No potential for LSE has been concluded for any impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect. Furthermore, when considering the construction phase will be both spatially and temporally restricted, the potential for any in-combination effect with other coastal developments can be considered unlikely. Therefore, LSE can be ruled out for in-combination effects.
- ✖h During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✖i The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Intertidal Ornithology HRA Screening Matrix: Landfall Zone at Lunderton associated with Ythan Estuary, Sands of Fovie and Meikle Loch SPA

Name of Designated site	Ythan Estuary, Sands of Forvie and Meikle Loch SPA								
EU Code	UK9002211								
Distance to Landfall Zone Lunderton	12.70km								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Pink-footed goose (non-breeding)	*a	*b	*c	*d	*g	*h	*l	*m	*n
Sandwich tern (breeding)	*a	*b	*c	*d	*g	*h	*l	*m	*n
Common tern (breeding)	*a	*b	*c	*d	*g	*h	*l	*m	*n
Little tern (breeding) ⁶⁸									
Waterbird assemblage (non-breeding)	*a	*b	*c	✓e	*g	✓i	✓o	*m	✓o
Eider (CoWA)	*a	*b	*c	✓f	*g	✓i	✓o	*m	✓o

⁶⁸ Landfall Zone Lunderton lies beyond the connectivity distance for this species. Therefore, no LSE is considered.

Name of Designated site	Ythan Estuary, Sands of Forvie and Meikle Loch SPA								
EU Code	UK9002211								
Distance to Landfall Zone Lunderton	12.70km								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Lapwing (CoWA)	✖a	✖b	✖c	✖d	✖g	✖h	✖i	✖m	✖n
Redshank (CoWA)	✖a	✖d	✖e	✖d	✖g	✖h	✖i	✖m	✖n

Evidence supporting conclusions

Direct temporary habitat loss

*a Sandwich terns were recorded in important numbers at Landfall Zone Lunderton during the intertidal surveys, with a peak count of 45 in early May 2023 equal to approximately 2.0% of the SPA population (JNCC, 2020). However, all records were of birds loafing and foraging in the nearshore habitat. The location of the records, coupled with the limited temporal and spatial footprint of the construction phase results in a finding of no potential for LSE.

Eider were recorded in important SPA numbers at Landfall Zone Lunderton during the intertidal surveys with a peak count of 100 in January 2023 equating to 5.4% of the SPA population (JNCC, 2020). During the non-breeding season, eider were recorded foraging and loafing in the nearshore habitats, with particular concentrations present to the north and south of the Landfall Zone. However, due to the location of the

majority of records being suitably distant from the Landfall Zone, in conjunction with the temporary nature and limited extent of the proposed works, a conclusion of no LSE is considered appropriate.

No additional qualifying features were recorded in important numbers during the intertidal surveys.

- *b During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- *c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Direct temporary disturbance and displacement

- *d Sandwich terns were recorded in important numbers at Landfall Zone Lunderton during the intertidal surveys, with a peak count of 45 in early May 2023 equal to approximately 2.0% of the SPA population (JNCC, 2020). However, all records were of birds loafing and foraging in the nearshore habitat. The location of the records, coupled with the limited temporal and spatial footprint of the construction phase results in a finding of no potential for LSE.
- ✓e LSE concluded for components of the waterbird assemblage, therefore LSE concluded for the waterbird assemblage.
- ✓f Eider were recorded in important numbers during the intertidal surveys, with a peak count of 100 in January 2023, equating to approximately 5.4% of the SPA population (JNCC, 2020). During the non-breeding season, eider were recorded foraging and loafing in the nearshore habitats, with particular concentrations present to the north and south of the Landfall Zone. As seaducks (including eider) are known to exhibit sensitivity to disturbance (Garthe and Hüppop, 2004; Jarrett *et al.*, 2018), potential for LSE is considered despite the temporary nature of the proposed works.
- *g During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- *h The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.
- ✓i The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of potential for LSE is appropriate.

In-combination

- *i No potential for LSE has been concluded for any impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect. Furthermore,

when considering the construction phase will be both spatially and temporally restricted, the potential for any in-combination effect with other coastal developments can be considered unlikely. Therefore, LSE can be ruled out for in-combination effects.

- *m During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- *n The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.
- ✓o Although the likelihood for any in-combination effects to occur is low given the spatial and temporal restriction of any works during the construction / decommissioning phase, due to the uncertainty regarding other projects construction timeframes and the potential for LSE has been concluded alone, potential for LSE has been concluded in-combination on a precautionary basis.

Intertidal Ornithology HRA Screening Matrix: Landfall Zone at Sandford Bay associated with Ythan Estuary, Sands of Fovie and Meikle Loch SPA

Name of Designated site	Ythan Estuary, Sands of Forvie and Meikle Loch SPA								
EU Code	UK9002211								
Distance to Landfall Zone Sandford Bay	8.26km								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Pink-footed goose (non-breeding)	*a	*b	*c	*g	*h	*i	*m	*n	*o
Sandwich tern (breeding)	*a	*b	*c	*g	*h	*i	*m	*n	*o
Common tern (breeding)	*a	*b	*c	*g	*h	*i	*m	*n	*o
Little tern (breeding) ⁶⁹									
Waterbird assemblage (non-breeding)	✓d	*b	✓e	✓j	*h	✓l	✓p	*n	✓p
Eider (CoWA)	*a	*b	*c	✓k	*h	✓l	✓p	*n	✓p

⁶⁹ Landfall Zone Sandford Bay lies beyond the connectivity distance for this species. Therefore, no LSE is considered.

Name of Designated site	Ythan Estuary, Sands of Forvie and Meikle Loch SPA								
EU Code	UK9002211								
Distance to Landfall Zone Sandford Bay	8.26km								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Lapwing (CoWA)	✖a	✖b	✖c	✖g	✖h	✖i	✖m	✖n	✖o
Redshank (CoWA)	✔f	✖b	✔e	✔k	✖l	✔l	✔p	✖p	✔p

Evidence supporting conclusions

Direct temporary habitat loss

*a Sandwich terns were recorded in important numbers at Landfall Zone Sandford Bay during the intertidal surveys, with a peak count of 26 in early May 2023 equal to approximately 1.2% of the SPA population (JNCC, 2020). However, the vast majority of records were of birds roosting along an area of rocky shoreline a minimum of c. 275m east of the Landfall Zone, with small numbers recorded foraging in the nearshore habitat seaward of MLWS (a peak count of two in June 2023, <1% of the SPA population). None were recorded using the sandy habitat in which the Landfall Zone is located. The location of the records, coupled with the limited temporal and spatial footprint of the construction phase results in a finding of no potential for LSE.

Eider were present in important numbers, with a peak count of 78 in March 2023, equating to approximately 4.2% of the SPA population (JNCC, 2020). The majority of records were of birds foraging and loafing in the nearshore habitat to the east of the Landfall Zone. The temporary

extent and scale of the proposed works are unlikely to result in significant habitat loss for eider. Therefore, a conclusion of no LSE is considered appropriate.

Pink-footed goose, common tern and lapwing were not recorded in important numbers during the intertidal surveys. Therefore, LSE can be ruled out.

- ✕b During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✕c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.
- ✓d LSE concluded for components of the waterbird assemblage. Therefore, LSE concluded for the waterbird assemblage.
- ✓e The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of potential for LSE is appropriate.
- ✓f Redshank were recorded in important numbers, with a peak count of 102 in March 2023, equating to approximately 8.9% of the SPA population (JNCC, 2020). As the majority of records were of birds using the intertidal habitat adjacent to the Landfall Zone Sandford Bay for foraging, LSE cannot be ruled out despite the temporary spatial and temporal footprint of the proposed works.

Direct temporary disturbance and displacement

- ✕g Sandwich terns were recorded in important numbers at Landfall Zone Sandford Bay during the intertidal surveys, with a peak count of 26 in early May 2023 equal to approximately 1.2% of the SPA population (JNCC, 2020). However, majority of Sandwich tern records at Landfall Zone Sandford Bay were of birds roosting on an area of rocky shoreline, c. 275m east of the Landfall Zone, with small numbers recorded foraging in the nearshore habitat seaward of MLWS (a peak count of two in June 2023, <1% of the SPA population). The location of the records, coupled with the limited temporal and spatial footprint of the construction phase results in a finding of no potential for LSE.

Pink-footed goose, common tern and lapwing were not recorded in important numbers during the intertidal surveys. Therefore, LSE can be ruled out.
- ✕h During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✕i The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.
- ✓j LSE concluded for components of the waterbird assemblage. Therefore, LSE concluded for the waterbird assemblage.

- ✓**k** Eider and redshank were recorded in important numbers during the intertidal surveys.
- Eider were present in important numbers, with a peak count of 78 in March 2023, equating to approximately 4.2% of the SPA population (JNCC, 2020). The majority of records were of birds foraging and loafing in the nearshore habitat to the east of the Landfall Zone. However, seaducks such as eider are known to exhibit sensitivity to disturbance (Garthe and Hüppop, 2004; Jarrett *et al.*, 2018).
- Redshank were recorded in important numbers, with a peak count of 102 in March 2023, equating to approximately 8.9% of the SPA population (JNCC, 2020). The majority of records were of birds using the intertidal habitat adjacent to the Landfall Zone for foraging. Redshank are known to exhibit high sensitivity to noise disturbance despite being tolerant to visual disturbance (Cutts *et al.*, 2013). Therefore, despite the temporary nature of the proposed works, potential for LSE is considered for these species.
- ✓**l** The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of potential for LSE is appropriate.

In-combination

- ✖**m** No potential for LSE has been concluded for any impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect. Furthermore, when considering the construction phase will be both spatially and temporally restricted, the potential for any in-combination effect with other coastal developments can be considered unlikely. Therefore, LSE can be ruled out for in-combination effects.
- ✖**n** During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ✖**o** The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.
- ✓**p** Although the likelihood for any in-combination effects to occur is low given the spatial and temporal restriction of any works during the construction / decommissioning phase, due to the uncertainty regarding other projects construction timeframes and the potential for LSE has been concluded alone, potential for LSE has been concluded in-combination on a precautionary basis.

Intertidal Ornithology HRA Screening Matrix: Landfall Zone and inland areas at Lunderton associated with Ythan Estuary and Meikle Loch Ramsar

Name of Designated site	Ythan Estuary and Meikle Loch Ramsar								
EU Code	UK13061								
Distance to Landfall Zone Lunderton	19.46km								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Pink-footed goose (non-breeding)	✖a	✖b	✖ c	✖d	✖e	✖f	✖g	✖h	✖i
Sandwich tern (breeding)	✖a	✖b	✖c	✖d	✖e	✖f	✖g	✖h	✖i

Evidence supporting conclusions

Direct temporary habitat loss

- *a Sandwich terns were recorded in important numbers at Landfall Zone Lunderton during the intertidal surveys, with a peak count of 45 in early May 2023 equal to approximately 4.3%% of the Ramsar population (JNCC, 1998). However, all records were of birds loafing and foraging in the nearshore habitat. The location of the records, coupled with the limited temporal and spatial footprint of the construction phase results in a finding of no potential for LSE.

No additional qualifying features were recorded in important numbers. Therefore, a conclusion of no LSE is considered appropriate.

- ×b During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ×c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Direct temporary disturbance and displacement

- ×f Sandwich terns were recorded in nationally important numbers at Landfall Zone Lunderton during the intertidal surveys, with a peak count of 45 in early May 2023 equal to approximately 4.3%% of the Ramsar population (JNCC, 1998). However, all records were of birds loafing and foraging in the nearshore habitat. The location of the records, coupled with the limited temporal and spatial footprint of the construction phase results in a finding of no potential for LSE.

No additional qualifying features were recorded in important numbers. Therefore, a conclusion of no LSE is considered appropriate.
- ×h During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ×i The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

In-combination

- ×g No potential for LSE has been concluded for any impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect. Furthermore, when considering the construction phase will be both spatially and temporally restricted, the potential for any in-combination effect with other coastal developments can be considered unlikely. Therefore, LSE can be ruled out for in-combination effects.
- ×h During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ×l The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Intertidal Ornithology HRA Screening Matrix: Landfall Zone at Sandford Bay associated with Ythan Estuary and Meikle Loch Ramsar

Name of Designated site	Ythan Estuary and Meikle Loch Ramsar								
EU Code	UK13061								
Distance to Landfall Zone Sandford Bay	15.76km								
Likely Effects of Project									
Effect	Direct temporary habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Pink-footed goose (non-breeding)	✖a	✖b	✖ c	✖d	✖e	✖f	✖g	✖h	✖i
Sandwich tern (breeding)	✖a	✖b	✖c	✖d	✖e	✖f	✖g	✖h	✖i

Evidence supporting conclusions

Direct temporary habitat loss

- *a Sandwich terns were recorded in important numbers at Landfall Zone Sandford Bay during the intertidal surveys, with a peak count of 26 in early May 2023 equal to approximately 2.5% of the Ramsar population (JNCC, 1998). However, the majority of records were of birds roosting along an area of rocky shoreline a minimum of c. 275m east of the Landfall Zone, with very small numbers foraging in the nearshore habitat (a peak count of two in June 2023, equating to <15% of the Ramsar population). The location of the records, coupled with the limited temporal and spatial footprint of the construction phase results in a finding of no potential for LSE.

No additional qualifying features were recorded in important numbers. Therefore, a conclusion of no LSE is considered appropriate.

- ×b During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ×c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Direct temporary disturbance and displacement

- ×d Sandwich terns were recorded in important numbers at Landfall Zone Sandford Bay during the intertidal surveys, with a peak count of 26 in early May 2023 equal to approximately 2.5% of the Ramsar population (JNCC, 1998). However, the majority of records were of birds roosting along an area of rocky shoreline a minimum of c. 275m east of the Landfall Zone, with very small numbers foraging in the nearshore habitat (a peak count of two in June 2023, equating to <15% of the Ramsar population). The location of the records, coupled with the limited temporal and spatial footprint of the construction phase results in a finding of no potential for LSE.

No additional qualifying features were recorded in important numbers. Therefore, a conclusion of no LSE is considered appropriate.

- ×e During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ×f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

In-combination

- ×g No potential for LSE has been concluded for any impact pathway from the Project alone. The level of potential effect from such an impact alone is considered to be negligible in nature and therefore it would have no tangible contribution to any in-combination effect. Furthermore, when considering the construction phase will be both spatially and temporally restricted, the potential for any in-combination effect with other coastal developments can be considered unlikely. Therefore, LSE can be ruled out for in-combination effects.
- ×h During operation the export cable will be subterranean. Therefore, a conclusion of no LSE is considered appropriate.
- ×i The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE is appropriate.

Onshore Ornithology Screening Matrices

Onshore Ornithology HRA Screening Matrix: Buchan Ness and Collieston Coast SPA

Name of Designated site	Buchan Ness and Collieston Coast SPA								
EU Code	UK9002491								
Distance to Project:	Overlaps Project Boundary								
Likely Effects of Project									
Effect	Direct habitat loss			Disturbance / displacement			In-combination		
Stage of Development	C ⁷⁰	O	D	C	O	D	C	O	D
Seabird assemblage (breeding)	✕a ⁷¹	✕b	✕c	✕d	✕e	✕f	✕g	✕g	✕g
Kittiwake (breeding, Component of Seabird Assemblage (CoSA))	✕a	✕b	✕c	✕d	✕e	✕f	✕g	✕g	✕g
Herring gull (breeding, CoSA)	✕a	✕b	✕c	✕d	✕e	✕f	✕g	✕g	✕g
Guillemot (breeding, CoSA)	✕a	✕b	✕c	✕d	✕e	✕f	✕g	✕g	✕g
Fulmar (breeding, CoSA)	✕a	✕b	✕c	✕d	✕e	✕f	✕g	✕g	✕g
Shag (breeding, CoSA)	✕a	✕b	✕c	✕d	✕e	✕f	✕g	✕g	✕g

⁷⁰ Defined stages of development are Construction (C); Operation (O); and Decommissioning (D).

⁷¹ Sequential letter referencing has been provided for each effect on a qualifying feature (used throughout the Screening Matrices), identifying whether a qualifying feature may be subject to Likely Significant Effects (LSE) ✓ or where an effect can be screened out ✕.

Evidence supporting conclusions

Direct habitat loss

- ✱a The nearest terrestrial sections (comprising rocky cliff faces supporting nesting/loafing seabirds) of the Buchan Ness to Collieston Coast SPA, is approximately 1,025m to the south of the Project boundary. Any proposed onshore infrastructure such as the jointing bay and associated working areas will be outside a zone of influence of nesting and loafing habitat within the SPA. There will be no resulting direct loss of functionally link habitat in relation to Buchan Ness to Collieston Coast SPA. No LSE is concluded for all of the components of the seabird assemblage, including kittiwake, herring gull, guillemot, fulmar and shag none of which utilise onshore habitats or those within a ZOI of the proposed works, therefore no LSE identified in respect the onshore components of the Project.
- ✱b During operation and maintenance phase the export cable will be subterranean and the jointing bay component will be situated outside a ZOI of the SPA and intertidal and coastal habitats supporting SPA species. Therefore, a conclusion of no LSE is considered appropriate in respect to the onshore components of the Project.
- ✱c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Direct temporary disturbance and displacement

- ✱d The nearest terrestrial sections (comprising rocky cliff faces supporting nesting/loafing seabirds) of the Buchan Ness to Collieston Coast SPA, is approximately 1,025m to the south of the Project boundary. Any proposed onshore infrastructure such as the jointing bay and associated working areas will be outside a zone of influence of nesting and loafing habitat within the SPA. There will be no resulting temporary disturbance or displacement habitat at Buchan Ness to Collieston Coast SPA. No LSE is concluded for all of the components of the seabird assemblage, including kittiwake, herring gull, guillemot, fulmar and shag none of which utilise onshore habitats or those within a ZOI of the proposed works, therefore no LSE identified in respect the onshore components of the Project.
- ✱e During operation and maintenance phase the export cable will be subterranean, and the jointing bay component will be situated outside a ZOI of the SPA and habitats supporting SPA species. Therefore, a conclusion of no LSE is considered appropriate in respect to the onshore components of the Project.
- ✱f The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

In-combination

- *g Where potential for no LSE has been concluded alone, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Onshore Ornithology HRA Screening Matrix: Landfall Zone Scotstown associated with Buchan Ness and Collieston Coast SPA

Name of Designated site	Buchan Ness and Collieston Coast SPA								
EU Code	UK9002491								
Distance to Landfall Zone Scotstown:	8.31km								
Likely Effects of Project									
Effect	Direct habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Kittiwake (CoSA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Herring gull (CoSA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Guillemot (CoSA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Fulmar (CoSA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Shag (CoSA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Seabird assemblage (breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g

Evidence supporting conclusions

Direct habitat loss

- ✱a The nearest terrestrial sections (comprising rocky cliff faces supporting nesting/loafing seabirds) of the Buchan Ness to Collieston Coast SPA, is approximately 9.1 km to the south of the Project boundary. Any proposed onshore infrastructure such as the jointing bay and associated working areas will be outside a zone of influence of nesting and loafing habitat within the SPA. There will be no resulting direct loss of functionally linked habitat at the Scotstown Landfall Zone in relation to the Buchan Ness to Collieston Coast SPA. No LSE is concluded for all of the components of the seabird assemblage, including kittiwake, herring gull, guillemot, fulmar and shag none of which utilise onshore habitats or those within a ZOI of the proposed works, therefore no LSE identified in respect the onshore components of the Project.
- ✱b During operation and maintenance phase the export cable will be subterranean and the jointing bay component will be situated outside a ZOI of the SPA and functionally linked intertidal habitats supporting SPA species. Therefore, a conclusion of no LSE is considered appropriate in respect to the onshore components of the Project.
- ✱c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Direct temporary disturbance and displacement

- ✱d The nearest terrestrial sections (comprising rocky cliff faces supporting nesting/loafing seabirds) of the Buchan Ness to Collieston Coast SPA, is approximately 9.1 km to the south of the Project boundary. Any proposed onshore infrastructure such as the jointing bay and associated working areas will be outside a zone of influence of nesting and loafing habitat within the SPA. There will be no resulting temporary disturbance or displacement habitat of functionally linked habitat at the Scotstown Landfall Zone Buchan Ness to Collieston Coast SPA. No LSE is concluded for all of the components of the seabird assemblage, including kittiwake, herring gull, guillemot, fulmar and shag none of which utilise onshore habitats or those within a ZOI of the proposed works, therefore no LSE identified in respect the onshore components of the Project.
- ✱e During operation and maintenance phase the export cable will be subterranean and the jointing bay component will be situated outside a ZOI of the SPA and functionally linked intertidal habitat supporting SPA species. Therefore, a conclusion of no LSE is considered appropriate in respect to the onshore components of the Project.
- ✱f The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

In-combination

- *g Where potential for no LSE has been concluded alone, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Onshore Ornithology HRA Screening Matrix: Landfall Zone Lunderton associated with Buchan Ness and Collieston Coast SPA

Name of Designated site	Buchan Ness and Collieston Coast SPA								
EU Code	UK9002491								
Distance to Landfall Zone Lunderton	4.62km								
Likely Effects of Project									
Effect	Direct habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Kittiwake (CoSA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Herring gull (CoSA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Guillemot (CoSA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Fulmar (CoSA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Shag (CoSA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Seabird assemblage (breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g

Evidence supporting conclusions

Direct habitat loss

- ✱a The nearest terrestrial sections (comprising rocky cliff faces supporting nesting/loafing seabirds) of the Buchan Ness to Collieston Coast SPA, is approximately 5.7 km to the south of the Project boundary. Any proposed onshore infrastructure such as the jointing bay and associated working areas will be outside a zone of influence of nesting and loafing habitat within the SPA. There will be no resulting direct loss of functionally linked habitat at the Lunderton Landfall Zone in relation to the Buchan Ness to Collieston Coast SPA. No LSE is concluded for all of the components of the seabird assemblage, including kittiwake, herring gull, guillemot, fulmar and shag none of which utilise onshore habitats or those within a ZOI of the proposed works, therefore no LSE identified in respect the onshore components of the Project.
- ✱b During operation and maintenance phase the export cable will be subterranean and the jointing bay component will be situated outside a ZOI of the SPA and functionally linked intertidal habitats supporting SPA species. Therefore, a conclusion of no LSE is considered appropriate in respect to the onshore components of the Project.
- ✱c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Direct temporary disturbance and displacement

- ✱d The nearest terrestrial sections (comprising rocky cliff faces supporting nesting/loafing seabirds) of the Buchan Ness to Collieston Coast SPA, is approximately 5.7 km to the south of the Project boundary. Any proposed onshore infrastructure such as the jointing bay and associated working areas will be outside a zone of influence of nesting and loafing habitat within the SPA. There will be no resulting temporary disturbance or displacement habitat of functionally linked habitat at the Lunderton Landfall Zone Buchan Ness to Collieston Coast SPA. No LSE is concluded for all of the components of the seabird assemblage, including kittiwake, herring gull, guillemot, fulmar and shag none of which utilise onshore habitats or those within a ZOI of the proposed works, therefore no LSE identified in respect the onshore components of the Project.
- ✱e During operation and maintenance phase the export cable will be subterranean and the jointing bay component will be situated outside a ZOI of the SPA and functionally linked intertidal habitat supporting SPA species. Therefore, a conclusion of no LSE is considered appropriate in respect to the onshore components of the Project.
- ✱f The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

In-combination

- *g Where potential for no LSE has been concluded alone, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Onshore Ornithology HRA Screening Matrix: Landfall Zone Sandford Bay associated with Buchan Ness and Collieston Coast SPA

Name of Designated site	Buchan Ness and Collieston Coast SPA								
EU Code	UK9002491								
Distance to Landfall Zone Sandford Bay	0.09km								
Likely Effects of Project									
Effect	Direct habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Kittiwake (CoSA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Herring gull (CoSA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Guillemot (CoSA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Fulmar (CoSA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Shag (CoSA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Seabird assemblage (breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g

Evidence supporting conclusions

Direct habitat loss

- ✱a The nearest terrestrial sections (comprising rocky cliff faces supporting nesting/loafing seabirds) of the Buchan Ness to Collieston Coast SPA, is approximately 1,025m to the south of the Project boundary. Any proposed onshore infrastructure such as the jointing bay and associated working areas will be outside a zone of influence of nesting and loafing habitat within the SPA. There will be no resulting direct loss of functionally linked habitat at the Sandford Bay Landfall Zone in relation to the Buchan Ness to Collieston Coast SPA. No LSE is concluded for all of the components of the seabird assemblage, including kittiwake, herring gull, guillemot, fulmar and shag none of which utilise onshore habitats or those within a ZOI of the proposed works, therefore no LSE identified in respect the onshore components of the Project.
- ✱b During operation and maintenance phase the export cable will be subterranean and the jointing bay component will be situated outside a ZOI of the SPA and functionally linked intertidal habitats supporting SPA species. Therefore, a conclusion of no LSE is considered appropriate in respect to the onshore components of the Project.
- ✱c The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

Direct temporary disturbance and displacement

- ✱d The nearest onshore components of the Project will be the transition joint bay, which is connected to the landfall where the offshore export cables cross from the marine environment, through the intertidal zone. The transition joint bay will be set back (>500m) from the intertidal habitats, which are utilised by foraging, roosting and loafing seabirds. There will be no resulting temporary disturbance or displacement habitat of functionally linked habitat at the Sandford Bay Landfall Zone Buchan Ness to Collieston Coast SPA. No LSE is concluded for all of the components of the seabird assemblage, including kittiwake, herring gull, guillemot, fulmar and shag none of which utilise onshore habitats or those within a ZOI of the proposed works, therefore no LSE identified in respect the onshore components of the Project.
- ✱e During operation and maintenance phase the export cable will be subterranean and the jointing bay component will be situated outside a ZOI of the SPA and functionally linked intertidal habitat supporting SPA species. Therefore, a conclusion of no LSE is considered appropriate in respect to the onshore components of the Project.
- ✱f The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. Therefore, a conclusion of no LSE is appropriate.

In-combination

- *g Where potential for no LSE has been concluded alone, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Onshore Ornithology HRA Screening Matrix: Loch of Strathbeg SPA / Ramsar

Name of Designated site	Loch of Strathbeg SPA / Ramsar								
EU Code	UK9002211								
Distance to Project	5.06km								
Likely Effects of Project									
Effect	Direct habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Svalbard barnacle goose (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Greylag goose (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Pink-footed goose (non-breeding)	✓a	✓b	✓c	✓d	✓e	✓f	✓g	✓g	✓g
Whooper swan (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Sandwich tern (breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Waterfowl assemblage (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Teal (Component of Waterbird Assemblage (CoWA))	*a	*b	*c	*d	*e	*f	*g	*g	*g
Goldeneye (CoWA)	*a	*b	*c	*d	*e	*f	*g	*g	*g

Evidence supporting conclusions

Direct habitat loss

- ✓a The Loch of Strathbeg SPA/ Ramsar qualifying features are limited to wildfowl species with the exception of Sandwich tern. None of the wildfowl qualifying features were recorded in nationally important numbers within or around Landfall Zone D during the intertidal or winter geese and swans surveys. However, during winter geese and swan surveys in 2022/23, pink-footed geese were recorded utilising agricultural land to the south of St Fergus Gas Terminal within and around fields at Landfall Zone D; birds were recorded throughout winter 2022/23 until late March. Between 297 and a peak count of 700 pink-footed geese were recorded in this area during each of November, January, February and March. The peak count recorded equates to approximately 2.5% of the SPA population (JNCC, 2018).

The nearest onshore components of the Project will be the transition joint bay, which is connected to the landfall where the offshore export cables cross from the marine environment, through the intertidal zone. The transition joint bay will be set back from the coastline in fields situated within agricultural fields, within a ZOI of functionally linked habitat supporting pink-footed geese. Further inland, a peak count of 400 pink-footed geese were also recorded at Hillhead of Cocklaw; however this location is outside a zone of influence (500m) of the potential cable route corridor. No other waterfowl were recorded in significant numbers within a zone of influence of the landfall, cable route corridors or substation sites. On this basis, there is potential for LSE to pink-footed geese resulting from direct loss of functionally linked habitat during the construction phase.

The majority of Sandwich tern records were of birds roosting on the rocky coastline c. 380m to the south-east of the Landfall Zone, with small numbers loafing and foraging in the nearshore habitat. The transition joint bay will be set back a further 500m from the Landfall Zone. Consequently there will be no resulting direct loss of functionally linked habitat for this species, given the distance and visual screening of the dune system between the intertidal area and agricultural fields. No LSE is therefore concluded for Sandwich tern, which do not utilise onshore habitats or those within a ZOI of the proposed works, therefore no LSE identified in respect the onshore components of the Project.

- ✓b During operation and maintenance phase the export cable will be subterranean but the jointing bay component will be situated within a ZOI of functionally linked habitat supporting pink-footed geese, which would be taken forward for further assessment.
- ✓c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate, with the exception of pink-footed geese which would be taken forward.

Direct temporary disturbance and displacement

- ✓d The Loch of Strathbeg SPA/ Ramsar qualifying features are limited to wildfowl species with the exception of Sandwich tern. None of the wildfowl qualifying features were recorded in nationally important numbers at Landfall Zone D during the intertidal surveys. As above however, pink-

footed geese were recorded during winter geese and swans surveys in 2022/23 utilising agricultural land to the south of St Fergus Gas Terminal within and around fields at the Scotstown Landfall (Landfall Zone D) and would potentially be subject to direct temporary disturbance and displacement. On this basis, there is potential for LSE to pink-footed geese resulting from temporary disturbance and displacement during construction of the onshore components.

The majority of Sandwich tern records were of birds roosting on the rocky coastline c. 380m to the south-east of the Landfall Zone, with small numbers loafing and foraging in the nearshore habitat. The transition joint bay will be set back a further 500m from the Landfall Zone. Consequently there will be no resulting temporary disturbance or displacement habitat of functionally linked habitat for this species, given the distance and visual screening of the dune system between the intertidal area and agricultural fields. No LSE is therefore concluded for Sandwich tern, which do not utilise onshore habitats or those within a ZOI of the proposed works, therefore no LSE identified in respect of the onshore components of the Project.

- ✓e During operation and maintenance phase the export cable will be subterranean but the jointing bay component will be situated within a ZOI of functionally linked habitat supporting pink-footed geese, which would be taken forward for further assessment.
- ✓f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate, with the exception of pink-footed geese which would be taken forward.

In-combination

- ✓g When considering inland functionally linked habitat utilised by pink-footed geese, there is potential for spatial and temporal overlap with other developments and therefore LSE is concluded for in combination effects to pink-footed geese during construction, operation and decommissioning. No additional in-combination issues are identified.

Onshore Ornithology HRA Screening Matrix: Landfall Zone at Lunderton associated with Loch of Strathbeg SPA / Ramsar

Name of Designated site	Loch of Strathbeg SPA / Ramsar								
EU Code	UK9002211								
Distance to Landfall Zone Lunderton	8.08km								
Likely Effects of Project									
Effect	Direct habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Svalbard barnacle goose (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Greylag goose (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Pink-footed goose (non-breeding)	✓a	✓b	✓c	✓d	✓e	✓f	✓g	✓g	✓g
Whooper swan (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Sandwich tern (breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Waterfowl assemblage (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Teal (CoWA)	*a	*b	*c	*d	*e	*f	*g	*g	*g

Name of Designated site	Loch of Strathbeg SPA / Ramsar								
EU Code	UK9002211								
Distance to Landfall Zone Lunderton	8.08km								
Likely Effects of Project									
Effect	Direct habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Goldeneye (CoWA)	✖a	✖b	✖c	✖d	✖e	✖f	✖g	✖g	✖g

Evidence supporting conclusions

Direct habitat loss

- ✓a The Loch of Strathbeg SPA/ Ramsar qualifying features are limited to wildfowl species with the exception of Sandwich tern. None of the wildfowl qualifying features were recorded in nationally important numbers within or around Landfall Zone D during the intertidal or winter geese and swans surveys. However, during winter geese and swan surveys in 2022/23, pink-footed geese were recorded utilising agricultural land to the south of St Fergus Gas Terminal within and around fields at Landfall Zone D (Scotstown); birds were recorded throughout winter 2022/23 until late March. Between 297 and a peak count of 700 pink-footed geese were recorded in this area during each of November, January, February and March. The peak count recorded equates to approximately 2.5% of the SPA population (JNCC, 2018).

The nearest onshore components of the Project will be the transition joint bay, which is connected to the landfall where the offshore export cables cross from the marine environment, through the intertidal zone. The transition joint bay will be set back from the coastline situated in agricultural fields and screened by existing forestry plantation. Nevertheless, there is potential for pink-tooted geese to utilise functionally linked habitat within a ZOI of the onshore components. No other waterfowl were recorded in significant numbers within a zone of influence of the

onshore components. On this basis, there is potential for LSE to pink-footed geese resulting from direct loss of functionally linked habitat during the construction phase.

The majority of Sandwich tern records were of birds loafing and foraging in the nearshore habitat. Consequently there will be no resulting direct loss of functionally linked habitat for this species, given the distance and visual screening of the dune system and plantation woodland between the nearshore habitats and agricultural fields. No LSE is therefore concluded for Sandwich tern, which do not utilise onshore habitats or those within a ZOI of the proposed works, therefore no LSE identified in respect the onshore components of the Project.

- ✓b During operation and maintenance phase the export cable will be subterranean but the jointing bay component will be situated within a potential ZOI of functionally linked habitat supporting pink-footed geese, which would be taken forward for further assessment.
- ✓c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate, with the exception of pink-footed geese which would be taken forward.

Direct temporary disturbance and displacement

- ✓d The Loch of Strathbeg SPA/ Ramsar qualifying features are limited to wildfowl species with the exception of Sandwich tern. None of the wildfowl qualifying features were recorded in nationally important numbers at Landfall Zone D during the intertidal surveys. As above however, pink-footed geese were recorded during winter geese and swans surveys in 2022/23 utilising agricultural land to the south of St Fergus Gas Terminal within and around fields at the Scotstown Landfall (Landfall Zone D) and would potentially be subject to direct temporary disturbance and displacement. On this basis, there is potential for LSE to pink-footed geese resulting from temporary disturbance and displacement during construction of the onshore components.

The majority of Sandwich tern records were of birds roosting on the rocky coastline c. 380m to the south-east of the Landfall Zone, with small numbers loafing and foraging in the nearshore habitat. The transition joint bay will be set back a further 500m from the Landfall Zone. Consequently, there will be no resulting temporary disturbance or displacement habitat of functionally linked habitat for this species, given the distance and visual screening of the dune system between the intertidal area and agricultural fields. No LSE is therefore concluded for Sandwich tern, which do not utilise onshore habitats or those within a ZOI of the proposed works, therefore no LSE identified in respect the onshore components of the Project.

- ✓e During operation and maintenance phase the export cable will be subterranean but the jointing bay component could be situated within a potential ZOI of functionally linked habitat supporting pink-footed geese, which would be taken forward for further assessment.
- ✓f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate, with the exception of pink-footed geese which would be taken forward.

In-combination

- ✓g When considering inland functionally linked habitat utilised by pink-footed geese, there is potential for spatial and temporal overlap with other developments and therefore LSE is concluded for in combination effects to pink-footed geese during construction, operation and decommissioning. No additional in-combination issues are identified.

Onshore Ornithology HRA Screening Matrix: Landfall Zone at Sandford Bay associated with Loch of Strathbeg SPA / Ramsar

Name of Designated site	Loch of Strathbeg SPA / Ramsar								
EU Code	UK9002211								
Distance to Landfall Zone Sandford Bay	14.28km								
Likely Effects of Project									
Effect	Direct habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Svalbard barnacle goose (non-breeding)	✕a	✕b	✕c	✕d	✕e	✕f	✕f	✕h	✕i
Greylag goose (non-breeding)	✕a	✕b	✕c	✕d	✕e	✕f	✕f	✕h	✕i
Pink-footed goose (non-breeding)	✕a	✕b	✕c	✕d	✕e	✕f	✕f	✕h	✕i
Whooper swan (non-breeding)	✕a	✕b	✕c	✕d	✕e	✕f	✕f	✕h	✕i
Sandwich tern (breeding)	✕a	✕b	✕c	✕d	✕e	✕f	✕f	✕h	✕i
Waterfowl assemblage (non-breeding)	✕a	✕b	✕c	✕d	✕e	✕f	✕f	✕h	✕i
Teal (CoWA)	✕a	✕b	✕c	✕d	✕e	✕f	✕f	✕h	✕i

Name of Designated site	Loch of Strathbeg SPA / Ramsar								
EU Code	UK9002211								
Distance to Landfall Zone Sandford Bay	14.28km								
Likely Effects of Project									
Effect	Direct habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Goldeneye (CoWA)	✖a	✖b	✖c	✖d	✖e	✖f	✖f	✖h	✖i

Evidence supporting conclusions

Direct habitat loss

- *a The Loch of Strathbeg SPA/ Ramsar qualifying features are limited to wildfowl species with the exception of Sandwich tern. None of the wildfowl qualifying features were recorded in important numbers at Landfall Zone F or further inland during the intertidal surveys or winter geese and swan surveys in 2022/23.
- The majority of Sandwich tern records at Landfall Zone F were of birds roosting on an area of rocky shoreline, c. 300m east of the Landfall Zone at its closest point. The transition joint bay will be set back a further 500m from the Landfall Zone. Consequently, there will be no resulting loss of functionally linked habitat for this species, given the distance from the nearshore habitats. No LSE is therefore concluded for Sandwich tern, which do not utilise onshore habitats or those within a ZOI of the proposed works, therefore no LSE identified in respect the onshore components of the Project.
- *b During operation and maintenance phase the export cable will be subterranean but the jointing bay component will be situated outside a potential ZOI of functionally linked habitat supporting Sandwich terns, therefore no LSE is concluded.

- *c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate.

Direct temporary disturbance and displacement

- *d The Loch of Strathbeg SPA/ Ramsar qualifying features are limited to wildfowl species with the exception of Sandwich tern. None of the wildfowl qualifying features were recorded in important numbers at Landfall Zone F or further inland during the intertidal surveys or winter geese and swan surveys in 2022/23.

The majority of Sandwich tern records at Landfall Zone F were of birds roosting on an area of rocky shoreline, c. 300m east of the Landfall Zone at its closest point. The transition joint bay will be set back a further 500m from the Landfall Zone. Consequently, there will be no resulting disturbance or displacement of functionally linked habitat for this species, given the distance from the nearshore habitats. No LSE is therefore concluded for Sandwich tern, which do not utilise onshore habitats or those within a ZOI of the proposed works, therefore no LSE identified in respect of the onshore components of the Project.

- *e During operation and maintenance phase the export cable will be subterranean but the jointing bay component will be situated outside a potential ZOI of functionally linked habitat supporting Sandwich terns, therefore no LSE is concluded.
- *f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate.

In-combination

- *g Where potential for no LSE has been concluded alone, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Onshore Ornithology HRA Screening Matrix: Ythan, Estuary, Sands of Fovie and Meikle Loch SPA

Name of Designated site	Ythan Estuary, Sands of Forvie and Meikle Loch SPA								
EU Code	UK9002211								
Distance to Project	16.32km								
Likely Effects of Project									
Effect	Direct habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Pink-footed goose (non-breeding)	✓a	✓b	✓c	✓d	✓e	✓f	✓g	✓g	✓g
Sandwich tern (breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Common tern (breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Little tern (breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Waterbird assemblage (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Eider (CoWA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Lapwing (CoWA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Redshank (CoWA)	*a	*b	*c	*d	*e	*f	*g	*g	*g

Evidence supporting conclusions

Direct habitat loss

- ✓a None of the qualifying features of the Ythan, Estuary, Sands of Fovie and Meikle Loch SPA were recorded in nationally important numbers within a ZOI of the onshore components, with the exception of pink-footed geese, which were recorded utilising agricultural land to the south of St Fergus Gas Terminal within and around fields at Landfall Zone D; birds were recorded throughout winter 2022/23 until late March. Between 297 and a peak count of 700 pink-footed geese were recorded in this area during each of November, January, February and March. The peak count recorded equates to approximately 2.5% of the SPA population (JNCC, 2018).

The nearest onshore components of the Project will be the transition joint bay, which is connected to the landfall where the offshore export cables cross from the marine environment, through the intertidal zone. The transition joint bay will be set back from the coastline in fields situated within agricultural fields, within a ZOI of functionally linked habitat supporting pink-footed geese. Further inland, a peak count of 400 pink-footed geese were also recorded at Hillhead of Cocklaw; however this location is outside a zone of influence (500m) of the potential cable route corridor. On this basis, there is potential for LSE to pink-footed geese resulting from direct loss of functionally linked habitat during the construction phase.

- ✓b During operation and maintenance phase the export cable will be subterranean but the jointing bay component will be situated within a ZOI of functionally linked habitat supporting pink-footed geese, which would be taken forward for further assessment.
- ✓c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate, with the exception of pink-footed geese which would be taken forward.

Direct temporary disturbance and displacement

- ✓d None of the qualifying features of the Ythan, Estuary, Sands of Fovie and Meikle Loch SPA were recorded in nationally important numbers within a ZOI of the onshore components. As above however, pink-footed geese were recorded during winter geese and swans surveys in 2022/23 utilising agricultural land to the south of St Fergus Gas Terminal within and around fields at the Scotstown Landfall (Landfall Zone D) and would potentially be subject to direct disturbance and displacement. On this basis, there is potential for LSE to pink-footed geese resulting from disturbance and displacement during construction of the onshore components.
- ✓e During operation and maintenance phase the export cable will be subterranean but the jointing bay component will be situated within a ZOI of functionally linked habitat supporting pink-footed geese, which would be taken forward for further assessment.

- ✓f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate, with the exception of pink-footed geese which would be taken forward.

In-combination

- ✓g When considering inland functionally linked habitat utilised by pink-footed geese, there is potential for spatial and temporal overlap with other developments and therefore LSE is concluded for in combination effects to pink-footed geese during construction, operation and decommissioning. No additional in-combination issues are identified.

Onshore Ornithology HRA Screening Matrix: Landfall Zone at Lunderton associated with Ythan Estuary, Sands of Fovie and Meikle Loch SPA

Name of Designated site	Ythan Estuary, Sands of Forvie and Meikle Loch SPA								
EU Code	UK9002211								
Distance to Landfall Zone Lunderton	12.70km								
Likely Effects of Project									
Effect	Direct habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Pink-footed goose (non-breeding)	✓a	✓b	✓c	✓d	✓e	✓f	✓g	✓g	✓g
Sandwich tern (breeding)	✗a	✗b	✗c	✗d	✗e	✗f	✗g	✗g	✗g
Common tern (breeding)	✗a	✗b	✗c	✗d	✗e	✗f	✗g	✗g	✗g
Little tern (breeding)	✗a	✗b	✗c	✗d	✗e	✗f	✗g	✗g	✗g
Waterbird assemblage (non-breeding)	✗a	✗b	✗c	✗d	✗e	✗f	✗g	✗g	✗g
Eider (CoWA)	✗a	✗b	✗c	✗d	✗e	✗f	✗g	✗g	✗g
Lapwing (CoWA)	✗a	✗b	✗c	✗d	✗e	✗f	✗g	✗g	✗g

Name of Designated site	Ythan Estuary, Sands of Forvie and Meikle Loch SPA								
EU Code	UK9002211								
Distance to Landfall Zone Lunderton	12.70km								
Likely Effects of Project									
Effect	Direct habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Redshank (CoWA)	✖a	✖b	✖c	✖d	✖e	✖f	✖g	✖g	✖g

Evidence supporting conclusions

Direct habitat loss

- ✓a None of the qualifying features of the Ythan, Estuary, Sands of Fovie and Meikle Loch SPA were recorded in nationally important numbers within a ZOI of the onshore components, with the exception of pink-footed geese, which were recorded utilising agricultural land to the south of St Fergus Gas Terminal within and around fields at Landfall Zone D (Scotstown); birds were recorded throughout winter 2022/23 until late March. Between 297 and a peak count of 700 pink-footed geese were recorded in this area during each of November, January, February and March. The peak count recorded equates to approximately 2.5% of the SPA population (JNCC, 2018).

The nearest onshore components of the Project will be the transition joint bay, which is connected to the landfall where the offshore export cables cross from the marine environment, through the intertidal zone. The transition joint bay will be set back from the coastline situated in agricultural fields and screened by existing forestry plantation. Nevertheless, there is potential for pink-tooted geese to utilise functionally linked habitat within a ZOI of the onshore components. No other waterfowl were recorded in significant numbers within a zone of influence of the onshore components. On this basis, there is potential for LSE to pink-footed geese resulting from direct loss of functionally linked habitat during the construction phase.

- ✓b During operation and maintenance phase the export cable will be subterranean but the jointing bay component will be situated within a ZOI of functionally linked habitat supporting pink-footed geese, which would be taken forward for further assessment.
- ✓c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate, with the exception of pink-footed geese which would be taken forward.

Direct temporary disturbance and displacement

- ✓d None of the qualifying features of the Ythan, Estuary, Sands of Fovie and Meikle Loch SPA were recorded in nationally important numbers within a ZOI of the onshore components. As above however, pink-footed geese were recorded during winter geese and swans surveys in 2022/23 utilising agricultural land to the south of St Fergus Gas Terminal within and around fields at the Scotstown Landfall (Landfall Zone D) and would potentially be subject to direct disturbance and displacement. On this basis, there is potential for LSE to pink-footed geese resulting from disturbance and displacement during construction of the onshore components.
- ✓e During operation and maintenance phase the export cable will be subterranean but the jointing bay component will be situated within a ZOI of functionally linked habitat supporting pink-footed geese, which would be taken forward for further assessment.
- ✓f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate, with the exception of pink-footed geese which would be taken forward.

In-combination

- ✓g When considering inland functionally linked habitat utilised by pink-footed geese, there is potential for spatial and temporal overlap with other developments and therefore LSE is concluded for in combination effects to pink-footed geese during construction, operation and decommissioning. No additional in-combination issues are identified.

Onshore Ornithology HRA Screening Matrix: Landfall Zone at Sandford Bay associated with Ythan Estuary, Sands of Fovie and Meikle Loch SPA [Onshore]

Name of Designated site	Ythan Estuary, Sands of Forvie and Meikle Loch SPA								
EU Code	UK9002211								
Distance to Landfall Zone Sandford Bay	8.26km								
Likely Effects of Project									
Effect	Direct habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Pink-footed goose (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Sandwich tern (breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Common tern (breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Little tern (breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Waterbird assemblage (non-breeding)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Eider (CoWA)	*a	*b	*c	*d	*e	*f	*g	*g	*g
Lapwing (CoWA)	*a	*b	*c	*d	*e	*f	*g	*g	*g

Name of Designated site	Ythan Estuary, Sands of Forvie and Meikle Loch SPA								
EU Code	UK9002211								
Distance to Landfall Zone Sandford Bay	8.26km								
Likely Effects of Project									
Effect	Direct habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Redshank (CoWA)	✖a	✖b	✖c	✖d	✖e	✖f	✖g	✖g	✖g

Evidence supporting conclusions

Direct habitat loss

- *a None of the qualifying features of the Ythan, Estuary, Sands of Fovie and Meikle Loch SPA were recorded in nationally important numbers within a ZOI of the onshore components. On this basis, there is no potential for LSE to qualifying species resulting from direct loss of functionally linked habitat during the construction phase of onshore components.
- *b During operation and maintenance phase the export cable will be subterranean, and the jointing bay component will be situated outside a potential ZOI of functionally linked habitat supporting qualifying species, therefore no LSE is concluded.
- *c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate.

Direct temporary disturbance and displacement

- *d None of the qualifying features were recorded in important numbers within a ZOI of Landfall Zone F during the intertidal surveys or winter geese and swan surveys in 2022/23, therefore no LSE are identified in respect to the onshore components of the Project.
- *e During operation and maintenance phase the export cable will be subterranean and the jointing bay component will be situated outside a potential ZOI of functionally linked habitat supporting qualifying species, therefore no LSE is concluded.
- *f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate.

In-combination

- *g Where potential for no LSE has been concluded alone, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

Onshore Ornithology HRA Screening Matrix: Landfall Zone at Lunderton associated with Ythan Estuary and Meikle Loch Ramsar

Name of Designated site	Ythan Estuary and Meikle Loch Ramsar								
EU Code	UK13061								
Distance to Landfall Zone Lunderton	19.46km								
Likely Effects of Project									
Effect	Direct habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Pink-footed goose (non-breeding)	✓a	✓b	✓c	✓d	✓e	✓f	✓g	✓g	✓g
Sandwich tern (breeding)	✗a	✗b	✗c	✗d	✗e	✗f	✗g	✗g	✗g

Evidence supporting conclusions

Direct habitat loss

- ✓a The only qualifying species of the Ythan Estuary and Meikle Loch Ramsar recorded in nationally important numbers within a ZOI of the onshore components was pink-footed geese, which were recorded utilising agricultural land to the south of St Fergus Gas Terminal within and around fields at Landfall Zone D (Scotstown); birds were recorded throughout winter 2022/23 until late March. Between 297 and a peak count of 700 pink-footed geese were recorded in this area during each of November, January, February and March. The peak count recorded equates to approximately 2.5% of the SPA population (JNCC, 2018).

The nearest onshore components of the Project will be the transition joint bay, which is connected to the landfall where the offshore export cables cross from the marine environment, through the intertidal zone. The transition joint bay will be set back from the coastline situated in agricultural fields and screened by existing forestry plantation. Nevertheless, there is potential for pink-tooted geese to utilise functionally linked habitat within a ZOI of the onshore components. No other waterfowl were recorded in significant numbers within a zone of influence of the onshore components. On this basis, there is potential for LSE to pink-footed geese resulting from direct loss of functionally linked habitat during the construction phase.
- ✓b During operation and maintenance phase the export cable will be subterranean but the jointing bay component will be situated within a ZOI of functionally linked habitat supporting pink-footed geese, which would be taken forward for further assessment.
- ✓c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate, with the exception of pink-footed geese which would be taken forward.

Direct temporary disturbance and displacement

- ✓d As above, the only qualifying feature of the Ythan Estuary and Meikle Loch Ramsar were recorded in nationally important numbers within a ZOI of the onshore components. As above however, pink-footed geese were recorded during winter geese and swans surveys in 2022/23 utilising agricultural land to the south of St Fergus Gas Terminal within and around fields at the Scotstown Landfall (Landfall Zone D) and would potentially be subject to direct disturbance and displacement. On this basis, there is potential for LSE to pink-footed geese resulting from disturbance and displacement during construction of the onshore components.
- ✓e During operation and maintenance phase the export cable will be subterranean but the jointing bay component will be situated within a ZOI of functionally linked habitat supporting pink-footed geese, which would be taken forward for further assessment.

- ✓f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate, with the exception of pink-footed geese which would be taken forward.

In-combination

- ✓g When considering inland functionally linked habitat utilised by pink-footed geese, there is potential for spatial and temporal overlap with other developments and therefore LSE is concluded for in combination effects to pink-footed geese during construction, operation and decommissioning. No additional in-combination issues are identified.

Onshore Ornithology HRA Screening Matrix: Landfall Zone at Sandford Bay associated with Ythan Estuary and Meikle Loch Ramsar

Name of Designated site	Ythan Estuary and Meikle Loch Ramsar								
EU Code	UK13061								
Distance to Landfall Zone Sandford Bay	15.76km								
Likely Effects of Project									
Effect	Direct habitat loss			Direct temporary disturbance and displacement			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D
Pink-footed goose (non-breeding)	✖a	✖b	✖ c	✖d	✖e	✖f	✖g	✖g	✖g
Sandwich tern (breeding)	✖a	✖b	✖c	✖d	✖e	✖f	✖g	✖g	✖g

Evidence supporting conclusions

Direct habitat loss

- ✖a None of the qualifying features of the Ythan Estuary and Meikle Loch Ramsar were recorded in nationally important numbers within a ZOI of the onshore components. On this basis, there is no potential for LSE to qualifying species resulting from direct loss of functionally linked habitat during the construction phase of onshore components.
- ✖b During operation and maintenance phase the export cable will be subterranean, and the jointing bay component will be situated outside a potential ZOI of functionally linked habitat supporting qualifying species, therefore no LSE is concluded.
- ✖c The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate.

Direct temporary disturbance and displacement

- ✖d None of the qualifying features were recorded in important numbers within a ZOI of Landfall Zone F during the intertidal surveys or winter geese and swan surveys in 2022/23, therefore no LSE are identified in respect to the onshore components of the Project.
- ✖e During operation and maintenance phase the export cable will be subterranean and the jointing bay component will be situated outside a potential ZOI of functionally linked habitat supporting qualifying species, therefore no LSE is concluded.
- ✖f The impacts during the decommissioning phase are considered to be similar to those outlined in the construction phase. Therefore, a finding of no potential for LSE for all qualifying features is appropriate.

In-combination

- ✖g Where potential for no LSE has been concluded alone, no potential for LSE has been concluded in-combination. No additional in-combination issues are identified.

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