



**Inch Cape**  
OFFSHORE LIMITED

**Inch Cape Offshore Wind Farm  
Boulder Clearance and UXO  
Identification**

**Marine Licence Application**

**Report to Inform Appropriate  
Assessment (RIAA)**

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## Acronyms & Abbreviations

Acronym	Term
AA	Appropriate Assessment
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPS	European Protected Species
EPS-RA	European Protected Species – Risk Assessment
ES	Environmental Statement
FWPM	Freshwater Pearl Mussel
HRA	Habitats Regulation Appraisal
IAMMWG	Inter-Agency Marine Mammal Working Group
ICOL	Inch Cape Offshore Limited
LSE	Likely Significant Effects
MD-LOT	Marine Directorate – Licensing Operations Team
MHWS	Mean High Water Springs
MTL	Master target list
MU	Mammal Unit
OftI	Offshore Transmission Infrastructure
OftW	Offshore Transmission Works

OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
ROV	Remotely operated vehicle
SAC	Special Area of Conservation
SEI	Supporting Environmental Information
SMT-ROV	Subsea multi-tool remotely operated vehicle
SNH	Scottish Natural Heritage
SPA	Special Protection Area
SSC	Suspended Sediment Concentrations
USBL	Ultra-short baseline
UTM30N	Universal Transverse Mercator Zone 30 Northern Hemisphere
UTROV	Utility remotely operated vehicle
UXO	Unexploded ordnance
WROV	Work-class remotely operated vehicle

## Glossary

Defined Term		Meaning
The 2010 Act		Marine (Scotland) Act 2010.
The 2013 Application		The Environmental Statement, HRA Report and supporting documents submitted by the Company on 1 <sup>st</sup> July 2013 to construct and operate an offshore generating station and transmission works.
The 2018 Application		The EIA Report, HRA Report and supporting documents submitted by the Company on 15 August 2018 to construct and operate an offshore generating station and transmission works.
Development		The Inch Cape Offshore Wind Farm (the Wind Farm) and Offshore Transmission Works (OfTW) being developed by Inch Cape Offshore Limited (ICOL).
Development Area		The area for the Wind Farm, within which all Wind Turbine Generators, inter-array cables, interconnector cables, offshore substation platform(s) and the initial part of the Offshore Export Cable and any other associated works must be sited. As stipulated in the Crown Estate agreement for lease.
Inch Offshore Transmission	Cape	Components of the Development which are permitted by the OfTI Marine Licence (06782/19/0).
Inch Offshore	Cape Wind	A component of the Development, comprising wind turbines and their foundations and substructures, and inter-array cables.
Offshore Cables	Export	The subsea, buried or protected electricity cables running from the offshore wind farm substation to the landfall and transmitting the electricity generated to the onshore cables for transmission onwards to the onshore substation and the electrical grid connection.

Defined Term	Meaning
Offshore Export Cable Corridor/ Export Cable Corridor	The area within which the Offshore Export Cables will be laid from the OSP and up to Mean High Water Springs.
Offshore Transmission Works (OTW)	The Offshore Export Cable and OSPs. This includes all permanent and temporary works required.
The Wind Farm	The Inch Cape Offshore Wind Farm.



## Executive Summary

Inch Cape Offshore Limited (ICOL) is applying for a marine licence under Part 4 of the Marine (Scotland) Act 2010 (“the 2010 Act”). The marine licence is required for boulder clearance and unexploded ordnance (UXO) identification along the Offshore export Cable Corridor (ECC) and the Development Area for the Inch Cape Offshore Wind Farm (OWF).

As part of the pre-construction route clearance works, a number of activities are required in order for construction to proceed. These include boulder clearance and UXO identification. UXO clearance will be covered by a separate marine licence application.

Boulder clearance and UXO identification activities are minimally invasive, however are licensable due to the requirements to move boulders and agitate the sediment on the seabed.

The works will be localised, small scale and of short duration, taking place within the existing consented Project area i.e., the Development Area and the ECC.

Based on the consideration of potential impacts on European Designated Sites with potential connectivity to the work, it can be concluded the boulder clearance and UXO identification activities will not result in adverse effects on site integrity where connectivity exists.

This document has been prepared by competent experts (The Natural Power Consultants) to provide the supporting information to inform the marine licence application.

## 1 Introduction

### 1.1 Background

The Inch Cape Offshore Wind Farm (the Wind Farm) and Offshore Transmission Infrastructure (OfTI), hereafter referred to as the Development, is being developed by Inch Cape Offshore Limited (ICOL) (Figure 1.1).

In 2014, the Scottish Ministers granted ICOL Section 36 and Marine Licence consents, pursuant to the 2013 Application, for the construction and operation of an offshore wind farm and a marine licence for the construction and operation of offshore transmission works. The licences granted to ICOL in 2014 (along with those for other Forth and Tay projects, Seagreen Alpha and Bravo and Neart na Gaoithe) were subject to a petition for judicial review in early 2015. A decision was made by the UK Supreme Court in November 2017 to uphold the Scottish Ministers' decisions to grant the offshore consents.

In 2018 the original consent was updated, and a revised application was submitted to Scottish Ministers. In 2013 an Environmental Statement (ES) was produced to accompany the initial application based on the original design of the Wind Farm. This was also subsequently updated in 2018 with the production of an Environmental Impact Assessment Report (EIAR) to enable the use of progressions in technology following the original consent, through a reduction in turbine numbers (fewer turbines with larger generating capacity), and reduction in associated cabling (inter-array and export cables) in order to maximise efficiencies whilst minimising environmental impacts. The EIAR updated the 2013 ES and where impacts were predicted to be less than those already assessed, a new assessment was not undertaken as the conclusions drawn in the original 2013 ES remained valid.

Section 36 and Marine Licence consents for the revised design, were granted by Scottish Ministers in 2019. Since then, ICOL has successfully sought two variations to the Section 36 and Generation Station Marine Licence to optimise wind farm efficiency and both were granted consent in June 2023 (Section 36 Variation dated 14 June 2023 and Generation Marine Licence Variation MS-00010140 dated 15 June 2023).

In 2019 a revised Marine Licence was granted for the OfTI connecting the landfall location, near Cockenzie, East Lothian, and the Inch Cape Offshore Wind Farm. A varied Marine Licence (MS-00010593), to capture changes to deposit quantities and revision to the Offshore Export Cable Corridor coordinates, was granted 9th November 2023.

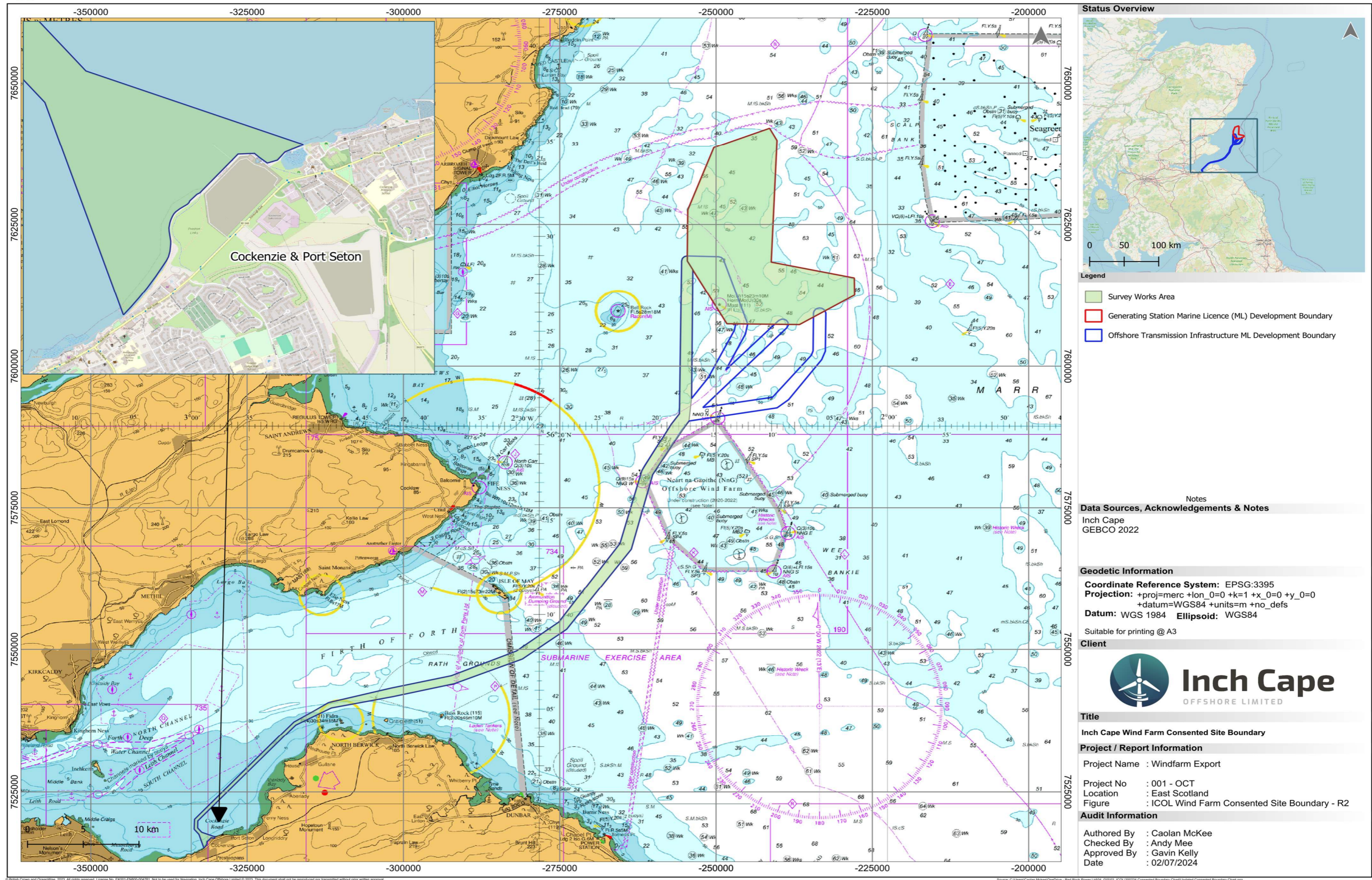


Figure 1.1: Survey Works Area in relation to the Inch Cape Offshore Wind Farm Development Area and Current Offshore Export Cable Corridor

## 1.2 Intention to Apply for a New Marine Licence

ICOL is applying for a marine licence for the boulder clearance and UXO identification for the whole Project, along the Export Cable Corridor (ECC) and within the Development Area (Figure 1.1).

Under the Marine (Scotland) Act 2010, a Marine Licence is required if a person or organisation intends to carry out 'the removal of substances/objects from the seabed using a vessel or similar' in the Scottish marine area, seaward of Mean High Water Springs (MHWS). ICOL intends to apply for a new marine licence under Part 4 of the Marine (Scotland) Act 2010 ("the 2010 Act") for boulder clearance and UXO identification activities.

UXO clearance operations, if required, will be covered by a separate application.

This document forms a suite of application documents constituting the complete marine licence application, namely:

- Report to Inform Appropriate Assessment (RIAA) (This document – Ref: IC02-INT-EC-OFL-012-INC-RPT-002);
- Supporting Environmental Information (SEI) Report (Ref: IC02-INT-EC-OFL-012-INC-RPT-001); and
- European Protected Species (EPS) Risk Assessment (RA) (NP Ref: 1356874, ICOL Ref: IC02-INT-EC-OFL-012-INC-RPT-005).

## 1.3 Scope of this Document

This document has been produced to provide the supporting information to inform the marine licence application, and contains the following:

- Introduction (Section 1);
- Description of the boulder clearance and UXO identification work (Section 2);
- Habitats Regulations Appraisal (HRA) Screening including potential for connectivity and Likely Significant Effect (LSE) screening (Section 3);
- Potential for adverse effect on site integrity from the boulder clearance and UXO identification activities (Section 4);
- Summary and Conclusions (Section 5); and
- References (Section 6).

The boulder clearance and UXO identification activities have been considered against whether they could result in likely significant effects (LSE) on European designated sites. For those sites where LSE cannot be ruled out, these are taken forward for further assessment to determine any potential effect on site integrity.

## 2 Description of the Boulder clearance and UXO identification activities

In order to undertake construction activities, a number of route preparation activities will be required to clear the area. This will include UXO identification through agitation of the seabed and boulder clearance. Any identified UXO will require mitigation. This will be through avoidance, relocation, or clearance (detonation). Clearance or relocation works will be covered by a separate marine licence application should they be required.

### 2.1 Outline Programme

The boulder clearance and UXO investigation is anticipated to be undertaken in October 2024 and it is expected to take around seven months. Note, however, that the programme is indicative, and both the programme and sequencing is subject to change. As a worst case, it is considered that vessels will be undertaking work for this entire time. The programme is also contingent on the number of boulders to be relocated and cleared from the Development Area and the ECC (it is expected that up to 20,000 boulders might need relocation). Currently it is proposed that a total of four vessels will be working at the same time: two nearshore dive vessels, and two Work-Class Remotely Operated Vehicle (WROV) vessels for the offshore elements of the work.

It is expected that the majority of the work will be within the Development Area, however there will also be a requirement for boulder clearance activities along the ECC.

### 2.2 Outline Method Statement

#### 2.2.1 Boulder Clearance and Relocation

A boulder relocation campaign will be required across the Inch Cape site (development area and Export Cable Route (ECR) – ‘Project’) to allow installation of the offshore substation platform (OSP), WTGs, and inter-array and export cables.

It is expected that boulders between the sizes of 0.2 m to 2 m will require relocation. Boulders will be moved outside of the planned jacking zones and 15 m along cable corridors. Boulder relocation will be undertaken using either a Subsea Multi Tool Remotely Operated Vehicle (SMT-ROV) or a Utility Remotely Operated Vehicle (UTROV) Smart Tine Grab. Subsurface boulders may require the use of a UTROV Smart Clamshell Grab. A boulder plough may also be used to clear boulders 0 – 1 m in size once larger boulders have been cleared.

All boulder relocation equipment (ROVs, grabs and ploughs) will be equipped with an Ultra-Short Baseline (USBL) system to monitor positioning. In low visibility working areas an imaging sonar may also be used to aid identification of boulders. Once an asset area has been cleared a multi-beam or sonar survey will be undertaken to ensure that there are no additional unidentified boulders or seabed debris.

#### 2.2.2 UXO Identification

A pre-construction UXO survey to enable the discrimination of pUXO threat items will be undertaken across the Project (development area and ECR). Work will be centred on the WTG (300 m x 300 m) and OSP (500 m x 500 m) locations, and a 100 m corridor around the inter-array and export cables.

This will result in the creation of a Master Target List (MTL) to inform the UXO target identification works.

Exact details of the offshore, nearshore and intertidal UXO target investigation work are yet to be confirmed, however, likely methods are outlined below.

#### **2.2.2.1 Offshore**

All offshore UXO target investigation work will be undertaken using a WROV. The WROV will fly a 10 x 10 m grid survey over the target position (with the potential to be extended to a 15 x 15 m grid if no magnetic target is identified). If the pUXO target is located the WROV will approach the target using a camera and sonar to undertake a close visual inspection. If the target is buried, the WROV-mounted suction tool will be used to gently excavate the seabed around the pUXO to a depth of 1 m.

After inspection the pUXO will be identified as either non UXO (nUXO) (debris) or confirmed UXO (cUXO). If the item is identified as nUXO it will be relocated outside the clearance area. If the target is identified as a cUXO a thorough inspection will be undertaken to identify the type and state of the cUXO.

Using this methodology, it is estimated that seven to eight pUXO targets can be identified and excavated a day.

#### **2.2.2.2 Nearshore**

Nearshore (in water depths < 10 m) UXO target investigation will be undertaken by divers. This involves a diver deployed with a hand-held magnetometer to survey the area and pinpoint the location of the pUXO. The diver will survey a 5 x 5 m grid area over the target position (with the potential to be extended to a 10 x 10 m area if no target is identified). Buried targets will be excavated using a diver-held airlift or high-pressure water jet. Individual target information (e.g. type and state) will be gathered by the diver. Depending on visibility a HD Sonar camera may be used to aid identification of seabed items.

It is anticipated that using this methodology three to four pUXO targets can be identified and excavated a day.

#### **2.2.3 Vessels**

The number and size of vessels required for boulder relocation is dependent on the number of boulders to be relocated and the type of equipment to be used. A maximum of two vessels (equipped with ROVs) is likely to be required.

A maximum of three vessels are likely to be used for the pUXO target investigation work. One vessel, equipped with ROVs, for offshore pUXO target investigation and two vessels for deployment of divers for nearshore pUXO target investigation.

Vessels will undertake 24/7 working and the target investigation strategy will be planned to minimise vessel transit lengths between targets.

### 3 Habitats Regulation Appraisal (HRA) Screening

This section of the report is intended to provide consideration of the potential for the boulder clearance and UXO identification activities to lead to Likely Significant Effect (LSE) on the conservation objectives of any relevant European designated Natura 2000 or Ramsar site. LSE is defined, in this context, as any effect (either alone or in-combination with other projects) that may be reasonably predicted as a consequence of a plan or project, to affect the conservation objectives of the features for which the site was designated. If LSE cannot be excluded from the activity, then the Competent Authority is required to make an Appropriate Assessment (AA) of the implications of the activity in view of the conservation objectives for any potentially affected Natura 2000 site, under the Conservation (Natural Habitats, &c.) Regulations 1994 (the Habitats Regulations).

The information in this report provides consideration whether a qualifying feature is likely to be directly or indirectly affected by the proposed activities. The HRA process involves two initial stages:

**Stage one:** Initial screening is undertaken to determine whether there is the potential for connectivity between the designated site features and the proposed activities. Further information is provided to determine and justify the conclusion of LSE on the site either alone or in combination with other proposals. Determinations of LSE are made in the absence of mitigation, where that mitigation is applied to reduce effects on designated sites.

**Stage two:** Where there is risk of a LSE, or insufficient evidence to rule out a risk of LSE, then a more detailed Appropriate Assessment must be carried out.

This section provides the Competent Authority with the relevant information to enable them to determine the potential for LSE and therefore the requirement for AA.

#### 3.1 Potential for Connectivity and Identification of Relevant Designated Sites

A number of EU Designated Sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites) have been identified as requiring consideration in this HRA based on their proximity to the boulder clearance and UXO identification activities to be undertaken at the Development, alongside the existence of potential impact pathways relevant to the site features (Table 3.1, Figure 3.1). As the purpose of this report is to identify the potential LSE for work which will be of shorter duration and more localised than the construction activities assessed for the wider Inch Cape Project, it is considered that effect pathways to more distant designated sites are considered unlikely and therefore have been discounted as having no potential for LSE.

Table 3.1: Identification of Sites with Potential Connectivity

Environmental Receptor	Criteria for determining potential for connectivity with designated sites	Designated sites
	SAC designated for bottlenose dolphin ( <i>Tursiops truncatus</i> ), based on the Greater North Sea Management Unit (MU) (IAMMWG (2023));	Moray Firth SAC
<b>Marine Mammals</b>	SAC designated for harbour porpoise ( <i>Phocoena phocoena</i> ) based on a 100 km buffer around SAC and overlap with the Project.	None
	Based on a lack of evidence to suggest movement of this species over large distances. Therefore, a conservative distance of 100 km from has been considered.	
	SAC designated for harbour seal ( <i>Phoca vitulina</i> ) based on foraging range of 50 km, based on average trip distance of seals tagged at an English haul out site (The Wash) (Sharples <i>et al.</i> , 2012).	Firth of Tay and Eden Estuary SAC
	Grey seal ( <i>Halichoerus grypus</i> ) foraging range is 20 km (Mean return-trip maximum extent (McConnell <i>et al.</i> , 1999)), however SAC are included based on a conservative distance of 50 km.	Isle of May SAC
<b>Ornithology</b>	This assessment considers all SPAs in the vicinity of the boulder clearance and UXO identification activities with seabird features which would reasonably interact with the boulder clearance and UXO identification activities. Distant SPAs were not considered as the work is small scale, localised and short term, and it is believed there is no potential for LSE on any SPA other than those in the Outer Firth of Firth area of the North Sea.	Forth Islands SPA Outer Firth of Forth and St Andrews Bay Complex SPA Firth of Forth SPA Firth of Tay and Eden Estuary SPA (and Ramsar) St Abb's Head to Fast Castle SPA Fowlsheugh SPA Ythan Estuary Sands of Forvie and Meikle Loch SPA (and Ramsar) Buchan Ness to Collieston Coast SPA
<b>Annex I Habitat</b>	Marine SAC with benthic features are included within 10 km of the proposed boulder clearance	Isle of May SAC Firth of Tay and Eden Estuary SAC



Environmental Receptor	Criteria for determining potential for connectivity with designated sites	Designated sites
	and UXO identification activities. The results of construction modelling in the ES (Intertek, 2013) predicted all material would settle out within 10 km. 25 km is therefore considered adequately conservative for the purposes of this report	
<b>Annex II Fish</b>	Connectivity based on known migration routes	River Tweed SAC River Tay SAC River Teith SAC River Dee SAC

### 3.2 LSE Screening

The following section (Section 3.2) considers the potential for LSE of the sites identified above (Section 3.1).

The following section considers the potential impacts on the sites identified and screened in. Detailed consideration of the potential effects identified in Stage 1 will establish whether there is any impact on the integrity of European sites, either alone or in-combination with other projects or plans, with respect to the European site's conservation objectives. The intention of this process is to determine whether there is objective evidence that adverse effects on the integrity of the site can be excluded. This stage also includes the development of mitigation measures to avoid or reduce any possible effects, however no mitigation measures have been taken into account as part of this LSE screening.

Recent general advice for renewable projects from NatureScot has been incorporated and followed for this work, and is therefore considered appropriate, given the nature of the works.

The only other plans or projects that could be considered to act in-combination are the other Inch Cape OWF construction related activities, Neart na Gaoithe construction and EGL-1 construction, as this work could be undertaken during the same timeframe and at the same spatial location.

**Table 3.2: LSE Screening (Note distances are provided as shortest straight-line distance).**

Relevant Qualifying Features	Impact Pathway	LSE Screening
<b>Outer Firth of Forth and St Andrews Bay Complex SPA (Direct overlap)</b>		
Red-throated diver ( <i>Gavia stellata</i> ) non-breeding	Vessel disturbance and indirect effects through impacts on prey	<b>Screened in</b> There is direct overlap of the boulder clearance and UXO identification activities with this SPA and therefore there is the
Common scoter		

Relevant Qualifying Features	Impact Pathway	LSE Screening
<i>(Melanitta nigra)</i> non-breeding		potential for direct impacts on the SPA features.
Arctic tern ( <i>Sterna paradisaea</i> ), breeding		The potential for LSE cannot be ruled out due to the possible disturbance of qualifying features of the Outer Firth of Forth and St Andrews Bay Complex SPA, arising from the boulder clearance and UXO identification. Therefore, this site is considered for further assessment (Section 4.1).
Common tern ( <i>Sterna hirundo</i> ), breeding		
Shag ( <i>Phalacrocorax aristotelis</i> ), breeding and non-breeding		
Gannet ( <i>Morus bassanus</i> ), breeding		
Puffin ( <i>Fratercula arctica</i> ), breeding		
Kittiwake ( <i>Rissa tridactyla</i> ), breeding and non-breeding		
Manx shearwater ( <i>Puffinus puffinus</i> ), breeding		
Guillemot ( <i>Uria aalge</i> ), breeding and non-breeding		
Razorbill ( <i>Alca torda</i> ), non-breeding		
Herring gull ( <i>Larus argentatus</i> ), breeding		
Wintering gulls (little gull ( <i>Hydrocoloeus minutus</i> ), Black-headed gull ( <i>Chroicocephalus ridibundus</i> ), common gull ( <i>Larus canus</i> )).		

Relevant Qualifying Features	Impact Pathway	LSE Screening
<b>Forth Islands SPA (<i>Direct overlap</i>)</b>		
Arctic tern ( <i>Sterna paradisaea</i> ), breeding	Vessel disturbance and indirect effects through impacts on prey	<p><b>Screened in</b></p> <p>There is direct overlap of the boulder clearance and UXO identification activities with this SPA and therefore there is the potential for direct impacts on the SPA features.</p> <p>The potential for LSE cannot be ruled out due to the possible disturbance of qualifying features of the Forth Islands SPA arising from the boulder clearance and UXO identification. Therefore, this site is considered for further assessment (Section 4.2).</p>
Cormorant ( <i>Phalacrocorax carbo</i> ), breeding		
Guillemot ( <i>Uria aalge</i> ), breeding		
Common tern ( <i>Sterna hirundo</i> ), breeding		
Gannet ( <i>Morus bassanus</i> ), breeding		
Herring gull ( <i>Larus argentatus</i> ), breeding		
Kittiwake ( <i>Rissa tridactyla</i> ), breeding		
Lesser black-backed gull ( <i>Larus fuscus</i> ), breeding		
Puffin ( <i>Fratercula arctica</i> ), breeding		
Razorbill ( <i>Alca torda</i> ), breeding		
Roseate tern ( <i>Sterna dougallii</i> ), breeding		
Sandwich tern ( <i>Sterna sandvicensis</i> ), breeding		
Shag ( <i>Phalacrocorax aristotelis</i> ), breeding		
Seabird assemblage, breeding		

Relevant Qualifying Features	Impact Pathway	LSE Screening
<b>Firth of Forth SPA (<i>Direct overlap</i>)</b>		
Cormorant ( <i>Phalacrocorax carbo</i> ), non-breeding (Ramsar interest feature)	Vessel disturbance and indirect effects through impacts on prey	<b>Screened out</b> The SPA overlaps the landfall of the ECC at Cockenzie and is coastal in nature.
Red-throated diver ( <i>Gavia stellata</i> ) non-breeding		No boulder clearance or UXO identification activities would be undertaken at the immediate landfall.
Sandwich tern ( <i>Sterna sandvicensis</i> ), breeding		Therefore, there is no potential for LSE both alone and in combination with other plans and projects.
<b>Isle of May SAC (4.3 km)</b>		
Grey seal ( <i>Halichoerus grypus</i> )	Vessel disturbance and indirect effects through impacts on prey	<b>Screened in</b> This site is 4.3 km from the Development.
Reefs	Vessel disturbance leading to collision risk  Physical disturbance to the seabed leading to an increase in SSC	This distance falls within the 50 km of the boulder clearance and UXO identification activities and therefore it is considered there is the potential for connectivity. The boulder clearance and UXO identification work will increase vessels in the area which leads to an increased collision risk. Grey seals aggregate in the autumn to breed at traditional colonies and therefore, given the proposed timing of the work (starting in Q4, 2024), the potential for LSE cannot be ruled out due to the possible disturbance of qualifying features and the site is considered for further assessment.  Reef features can be susceptible to smothering and scour from increased sediment in the water column arising as a result of the boulder clearance and UXO identification activities.  The potential for LSE cannot be ruled out due to the possible disturbance of grey seal and potential smothering of reef features of the SAC arising from the boulder clearance and UXO identification. Therefore, this site is considered for further assessment (Section 4.3).

Relevant Qualifying Features	Impact Pathway	LSE Screening
<b>River South Esk SAC (23.97 km)</b>		
<p>Freshwater pearl mussel (<i>Margaritifera margaritifera</i>)</p> <p>Atlantic salmon (<i>Salmo salar</i>)</p>	<p>Increase in noise arising from vessel disturbance and boulder clearance and UXO identification related methods</p> <p>Physical disturbance to the seabed leading to an increase in SSC</p>	<p><b>Screened out</b></p> <p>This site is 23.97 km from the Development.</p> <p>Boulder clearance and UXO identification activities are unlikely to affect Atlantic salmon and FWPM.</p> <p>Construction noise has the potential to affect smolts migrating to their northern feeding grounds, however, the noise associated with the boulder clearance and UXO identification is considerably less than construction noise.</p> <p>Due to the range of the species, and the offshore northward direction of migration and the likely temporary use of the area, disturbance from the Project and other offshore wind farm projects is very unlikely to affect the designated River South Esk population of Atlantic salmon and FWPM in any way. Salmon are not considered overly sensitive to noise and are unlikely to be affected by the low levels of noise arising from this work. It has been shown that piling noise for example (considerably greater than any noise generated from these activities) does not drive behavioral differences / startle responses in Salmon (Harding <i>et al.</i>, 2016).</p> <p>Increases in SSC are predicted to be minimal due to the small, localised area of sediment affected, and lack of sensitivity to this impact on salmon<sup>1</sup>. FWPM have a complex lifecycle and are reliant on salmonids in their first year where they reside on the gills<sup>2</sup>.</p> <p>Therefore, Atlantic salmon and FWPM are screened out of further assessment due to the ability to move, a low likelihood of interaction, and minimal response expected to any noise or SSC due to its generally low level. Therefore, LSE can be ruled out both alone and in combination with other plans and projects.</p>

<sup>1</sup> <https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-effects-analysis-turbidity-greater-atlantic-region>

<sup>2</sup> <https://www.nature.scot/plants-animals-and-fungi/invertebrates/freshwater-invertebrates/freshwater-pearl-mussel>

Relevant Qualifying Features	Impact Pathway	LSE Screening
<b>Firth of Tay and Eden Estuary SAC (24.53 km)</b>		
Harbour seal ( <i>Phoca vitulina</i> )	<p>Vessel disturbance and indirect effects through impacts on prey</p> <p>Vessel disturbance leading to collision risk</p>	<p><b>Screened in</b></p> <p>This site is 24.53 km from the Development.</p> <p>The Firth of Tay and Eden Estuary SAC supports a nationally important breeding colony of harbour seal, which forms part of the east coast population of common seals that typically utilise the sandbanks. Around 600 adults haul-out at the site to rest, pup and moult, representing around 2% of the UK population<sup>3</sup>.</p> <p>The boulder clearance and UXO identification work will increase vessels in the area which leads to an increased collision risk.</p> <p>The potential for LSE cannot be ruled out due to the possible disturbance of the harbour seal feature of the SAC arising from the boulder clearance and UXO identification. Therefore, this site is considered for further assessment (Section 4.4).</p>
<p>Estuaries</p> <p>Intertidal mudflats and sandflats</p> <p>Subtidal sandbanks</p>	<p>Physical disturbance to the seabed leading to an increase in SSC</p>	<p><b>Screened out</b></p> <p>This site is 24.63 km from the Development. Features can be susceptible to smothering (and accretion) and scour from increased sediment in the water column, however are considered resilient (MarLIN, 2020). Given these activities will result in considerably less seabed interaction than the activities assessed (cable burial via jetting / ploughing) and due to the static nature of the feature and distance from the boulder clearance and UXO identification activities there is no impact pathway and therefore no potential for LSE both alone and in combination with other plans and projects.</p>
<b>Firth of Tay and Eden Estuary SPA (and Ramsar) (25.23 km)</b>		
<p>Common scoter (<i>Melanitta nigra</i>), non-breeding (Ramsar interest feature)</p> <p>Cormorant</p>	<p>Vessel disturbance and indirect effects through impacts on prey</p>	<p><b>Screened out</b></p> <p>The site is 25.23 km from the Development and therefore is considered too far for the proposed work to impact upon the populations of the qualifying bird species.</p> <p>The boulder clearance and UXO identification activities are</p>

<sup>3</sup> <https://sac.jncc.gov.uk/site/UK0030311>

Relevant Qualifying Features	Impact Pathway	LSE Screening
<p>(<i>Phalacrocorax carbo</i>), non-breeding (Ramsar interest feature)</p>		<p>relatively unintrusive to the seabed with disturbance representing a relatively small proportion of the total available habitat.</p> <p>The additional vessel presence arising from the boulder clearance and UXO identification activities is considered to have a negligible potential to disturb SPA ornithological receptors due to the activities being situated in a naturally busy shipping area at some distance from the SPA. It is considered therefore that the presence of the vessel (s) associated with this work would not materially contribute to an increase in overall vessel traffic giving rise to potential effects on ornithological receptors.</p> <p>Therefore, there is no potential for LSE both alone and in combination with other plans and projects.</p>
<b>Berwickshire and North Northumberland Coast SAC (26.45 km)</b>		
<p>Grey seal (<i>Halichoerus grypus</i>)</p>	<p>Vessel disturbance and indirect effects through impacts on prey</p> <p>Vessel disturbance leading to collision risk</p>	<p><b>Screened in</b></p> <p>This site is 26.45 km from the Development.</p> <p>This distance falls within the 50 km of the boulder clearance and UXO identification activities and therefore it is considered there is the potential for connectivity. The boulder clearance and UXO identification work will increase vessels in the area which leads to an increased collision risk.</p> <p>The potential for LSE cannot be ruled out due to the possible disturbance of the grey seal feature of the SAC arising from the boulder clearance and UXO identification. Therefore, this site is considered for further assessment (Section 4.5).</p>
<p>Reefs</p> <p>Intertidal mudflats and sandflats</p> <p>Large shallow inlets and bays</p> <p>Sea caves</p>	<p>Physical disturbance to the seabed leading to an increase in SSC</p>	<p><b>Screened out</b></p> <p>This site is 26.45 km from the Development. Features can be susceptible to smothering (and accretion) and scour from increased sediment in the water column, Sediment was modelled during the EIA (ES, 2013) with no impacts predicted beyond 3 km and all material predicted to settle out within 10 km. Given these activities will result in considerably less seabed interaction than the activities assessed (cable burial via jetting / ploughing) and due to the static nature of the feature and distance from the boulder clearance and UXO identification activities there is no</p>

Relevant Qualifying Features	Impact Pathway	LSE Screening
<p>impact pathway and therefore no potential for LSE both alone and in combination with other plans and projects.</p>		
<p><b>St Abb's Head to Fast Castle SPA (27.42 km)</b></p>		
<p>Guillemot (<i>Uria aalge</i>), breeding Herring gull (<i>Larus argentatus</i>), breeding Kittiwake (<i>Rissa tridactyla</i>), breeding Razorbill (<i>Alca torda</i>), breeding Shag (<i>Phalacrocorax aristotelis</i>), breeding Seabird assemblage</p>	<p>Vessel disturbance and indirect effects through impacts on prey</p>	<p><b>Screened out</b></p> <p>The site is 27.42 km from the Development and therefore is considered too far for the proposed work to impact upon the populations of the qualifying bird species.</p> <p>The boulder clearance and UXO identification activities are relatively unintrusive to the seabed with disturbance representing a relatively small proportion of the total available habitat.</p> <p>The additional vessel presence arising from the boulder clearance and UXO identification activities is considered to have a negligible disturbance effect on the St Abb's Head to Fast Castle SPA ornithological receptors due to the activities being situated in a naturally busy shipping area. It is considered, the presence of the vessel (s) associated with this work would not materially contribute to an increase in overall vessel traffic giving rise to potential effects on ornithological receptors.</p> <p>Therefore, there is no impact pathway and therefore no potential for LSE both alone and in combination with other plans and projects.</p>
<p><b>Fowlsheugh SPA (33.11 km)</b></p>		
<p>Fulmar (<i>Fulmarus glacialis</i>), breeding Guillemot (<i>Uria aalge</i>), breeding Herring gull (<i>Larus argentatus</i>), breeding Kittiwake (<i>Rissa tridactyla</i>), breeding Razorbill (<i>Alca torda</i>), breeding</p>	<p>Vessel disturbance and indirect effects through impacts on prey</p>	<p><b>Screened out</b></p> <p>The site is 33.11 km from the Development and therefore is considered too far for the proposed work to impact upon the populations of the qualifying bird species.</p> <p>The boulder clearance and UXO identification activities are relatively unintrusive to the seabed with disturbance representing a relatively small proportion of the total available habitat.</p> <p>The additional vessel presence arising from the boulder clearance and UXO identification activities is considered to have a negligible disturbance effect on the Fowlsheugh SPA ornithological receptors due to the activities being situated in a</p>



Relevant Qualifying Features	Impact Pathway	LSE Screening
Seabird assemblage		<p>naturally busy shipping area. It is considered, the presence of the vessel (s) associated with this work would not materially contribute to an increase in overall vessel traffic giving rise to potential effects on ornithological receptors.</p> <p>Therefore, there is no impact pathway and therefore no potential for LSE both alone and in combination with other plans and projects.</p>
<b>River Tweed SAC (47.4 km)</b>		
<p>Sea lamprey (<i>Petromyzon marinus</i>)</p> <p>River lamprey (<i>Lampetra fluviatilis</i>)</p> <p>Atlantic salmon (<i>Salmo salar</i>)</p>	<p>Increase in noise arising from vessel disturbance and boulder clearance and UXO identification related methods.</p> <p>Physical disturbance to the seabed leading to an increase in SSC</p>	<p><b>Screened out</b></p> <p>This site is 47.4 km from the Development.</p> <p>As returning salmon adults are known to migrate from a southerly direction along the east coast, the Project is unlikely to impact the returning adult population. Construction noise has the potential to affect smolts migrating to their northern feeding grounds, however, the noise associated with the boulder clearance and UXO identification is considerably less than construction noise.</p> <p>Due to the range of the species, and the offshore northward direction of migration and the likely temporary use of the area, disturbance from the Project and other offshore wind farm projects is very unlikely to affect the designated River Tweed population of Atlantic salmon in any way. Salmon are not considered overly sensitive to noise and are unlikely to be affected by the low levels of noise arising from this work. It has been shown that piling noise for example (considerably greater than any noise generated from these activities) does not drive behavioral differences / startle responses in Salmon (Harding <i>et al.</i>, 2016). Increases in SSC are predicted to be minimal due to the small, localised area of sediment affected, and lack of sensitivity to this impact on salmon<sup>1</sup>.</p> <p>Lamprey do not have a swim bladder and are therefore not considered highly sensitive to noise (Popper <i>et al.</i>, 2014). River lamprey spend the majority of their life in estuarine habitats, with restricted movements to open sea (Maitland, 2003), rarely leaving estuarine environments. Lamprey are not considered sensitive to changes in suspended sediments as the species are partially estuarine and can tolerate the sorts of increases in suspended</p>

Relevant Qualifying Features	Impact Pathway	LSE Screening
<p>sediments likely to arise from this work (Marine Scotland, 2019). Given the boulder clearance and UXO identification activities will be of short duration, localised and small scale, lamprey are screened out of further assessment and there is no potential for LSE both alone and in combination with other plans and projects.</p>		
<b>River Tay SAC (58.9 km)</b>		
Sea lamprey <i>(Petromyzon marinus)</i>	Vessel disturbance and indirect effects through impacts on prey	<p><b>Screened out</b></p> <p>This site is 58.9 km from the Development.</p>
Atlantic salmon ( <i>Salmo salar</i> )		<p>Boulder clearance and UXO identification activities are unlikely to affect Atlantic salmon.</p>
River lamprey ( <i>Lampetra fluviatilis</i> )	Physical disturbance to the seabed leading to an increase in SSC	<p>Construction noise has the potential to affect smolts migrating to their northern feeding grounds, however, the noise associated with the boulder clearance and UXO identification is considerably less than construction noise.</p> <p>Due to the range of the species, and the offshore northward direction of migration and the likely temporary use of the area, disturbance from the Project and other offshore wind farm projects is very unlikely to affect the designated River Tay population of Atlantic salmon in any way. Salmon are not considered overly sensitive to noise and are unlikely to be affected by the low levels of noise arising from this work. It has been shown that piling noise for example (considerably greater than any noise generated from these activities) does not drive behavioral differences / startle responses in Salmon (Harding <i>et al.</i>, 2016).</p> <p>Increases in SSC are predicted to be minimal due to the small, localised area of sediment affected, and lack of sensitivity to this impact on salmon<sup>1</sup>.</p> <p>Lamprey do not have a swim bladder and are therefore not considered highly sensitive to noise (Popper <i>et al.</i>, 2014). River lamprey spend the majority of their life in estuarine habitats, with restricted movements to open sea (Maitland, 2003), rarely leaving estuarine environments. Lamprey are not considered sensitive to changes in suspended sediments as the species are partially estuarine and can tolerate the sorts of increases in suspended</p>

Relevant Qualifying Features	Impact Pathway	LSE Screening
<p>sediments likely to arise from this work (Marine Scotland, 2019). Given the boulder clearance and UXO identification activities will be of short duration, localised and small scale, lamprey are screened out of further assessment and there is no potential for LSE both alone and in combination with other plans and projects.</p>		
<p><b>River Teith SAC (60.85 km)</b></p>		
<p>Sea lamprey (<i>Petromyzon marinus</i>)</p>	<p>Vessel disturbance and indirect effects through impacts on prey</p>	<p><b>Screened out</b>  This site is 60.85 km from the Development.</p>
<p>Atlantic salmon (<i>Salmo salar</i>)</p>		<p>Boulder clearance and UXO identification activities are unlikely to affect Atlantic salmon.</p>
<p>River lamprey (<i>Lampetra fluviatilis</i>)</p>	<p>Physical disturbance to the seabed leading to an increase in SSC</p>	<p>Construction noise has the potential to affect smolts migrating to their northern feeding grounds, however, the noise associated with the boulder clearance and UXO identification is considerably less than construction noise.</p> <p>Due to the range of the species, and the offshore northward direction of migration and the likely temporary use of the area, disturbance from the Project and other offshore wind farm projects is very unlikely to affect the designated River Teith population of Atlantic salmon in any way. Salmon are not considered overly sensitive to noise and are unlikely to be affected by the low levels of noise arising from this work. It has been shown that piling noise for example (considerably greater than any noise generated from these activities) does not drive behavioral differences / startle responses in Salmon (Harding <i>et al.</i>, 2016).</p> <p>Increases in SSC are predicted to be minimal due to the small, localised area of sediment affected, and lack of sensitivity to this impact on salmon<sup>1</sup>.</p> <p>Therefore, Atlantic salmon are screened out of further assessment due to a low likelihood of interaction, and minimal response expected to any noise due to its generally low level. Therefore, LSE can be ruled out both alone and in combination with other plans and projects.</p> <p>Lamprey do not have a swim bladder and are therefore not considered highly sensitive to noise (Popper <i>et al.</i>, 2014). River</p>

Relevant Qualifying Features	Impact Pathway	LSE Screening
<p>lamprey spend the majority of their life in estuarine habitats, with restricted movements to open sea (Maitland, 2003), rarely leaving estuarine environments. Lamprey are not considered sensitive to changes in suspended sediments as the species are partially estuarine and can tolerate the sorts of increases in suspended sediments likely to arise from this work (Marine Scotland, 2019). Given the boulder clearance and UXO identification activities will be of short duration, localised and small scale, lamprey are screened out of further assessment and there is no potential for LSE both alone and in combination with other plans and projects.</p>		
<p><b>River Dee SAC (61.66 km)</b></p>		
<p>Freshwater pearl mussel (<i>Margaritifera margaritifera</i>)</p>	<p>Increase in noise arising from vessel disturbance and boulder clearance and UXO identification related methods.</p>	<p><b>Screened out</b> This site is 61.66 km north of the Development.</p>
<p>Atlantic salmon (<i>Salmo salar</i>)</p>	<p>Physical disturbance to the seabed leading to an increase in SSC</p>	<p>Boulder clearance and UXO identification activities are unlikely to affect Atlantic salmon and FWPM. Construction noise has the potential to affect smolts migrating to their northern feeding grounds, however, the noise associated with the boulder clearance and UXO identification is considerably less than construction noise.</p>
		<p>Due to the range of the species, and the offshore northward direction of migration and the likely temporary use of the area, disturbance from the Project and other offshore wind farm projects is very unlikely to affect the designated River Dee population of Atlantic salmon and FWPM in any way.</p>
		<p>Salmon are not considered overly sensitive to noise and are unlikely to be affected by the low levels of noise arising from this work. It has been shown that piling noise for example (considerably greater than any noise generated from these activities) does not drive behavioral differences / startle responses in Salmon (Harding <i>et al.</i>, 2016).</p>
		<p>Increases in SSC are predicted to be minimal due to the small, localised area of sediment affected, and lack of sensitivity to this impact on salmon<sup>1</sup>. FWPM have a complex lifecycle and are reliant on salmonids in their first year where they reside on the</p>

Relevant Qualifying Features	Impact Pathway	LSE Screening
<p style="text-align: right;">gills<sup>2</sup> .</p> <p>Therefore, Atlantic salmon and FWPM are screened out of further assessment due to a low likelihood of interaction, and minimal response expected to any noise due to its generally low level. Therefore, LSE can be ruled out both alone and in combination with other plans and projects.</p>		
<p><b>Ythan Estuary Sands of Forvie and Meikle Loch SPA (and Ramsar) (61.86 km)</b></p>		
<p>Common tern (<i>Sterna hirundo</i>), breeding</p> <p>Sandwich tern (<i>Thalasseus sandvicensis</i>) breeding</p> <p>Arctic tern (<i>Sterna paradisaea</i>), breeding</p> <p>Breeding bird assemblage</p>	<p>Vessel disturbance and indirect effects through impacts on prey</p>	<p><b>Screened out</b></p> <p>The site is 61.86 km from the Development and therefore is considered too far for the proposed work to impact upon the populations of the qualifying bird species.</p> <p>The boulder clearance and UXO identification activities are relatively unintrusive to the seabed with disturbance representing a relatively small proportion of the total available habitat.</p> <p>The additional vessel presence arising from the boulder clearance and UXO identification activities is considered to have a negligible disturbance effect on the Ythan Estuary Sands of Forvie and Meikle Loch SPA ornithological receptors due to the activities being situated in a naturally busy shipping area. It is considered, the presence of the vessel (s) associated with this work would not materially contribute to an increase in overall vessel traffic giving rise to potential effects on ornithological receptors.</p> <p>Therefore, there is no impact pathway and therefore no potential for LSE both alone or in combination with other plans and projects.</p>
<p><b>Buchan Ness to Collieston Coast SPA (82.23 km)</b></p>		
<p>Fulmar (<i>Fulmarus glacialis</i>), breeding</p> <p>Guillemot (<i>Uria aalge</i>), breeding</p> <p>Herring gull (<i>Larus</i></p>	<p>Vessel disturbance and indirect effects through impacts on prey</p>	<p><b>Screened out</b></p> <p>The site is 82.23 km from the Development and therefore is considered too far for the proposed work to impact upon the populations of the qualifying bird species.</p> <p>The boulder clearance and UXO identification activities are relatively unintrusive to the seabed with disturbance representing</p>

Relevant Qualifying Features	Impact Pathway	LSE Screening
<p><i>argentatus</i>), breeding</p> <p>Kittiwake (<i>Rissa tridactyla</i>), breeding</p> <p>Shag (<i>Phalacrocorax aristotelis</i>), breeding</p>		<p>a relatively small proportion of the total available habitat.</p> <p>The additional vessel presence arising from the boulder clearance and UXO identification activities is considered to have a negligible disturbance effect on the Buchan Ness to Collieston Coast SPA ornithological receptors due to the activities being situated in a naturally busy shipping area. It is considered, the presence of the vessel (s) associated with this work would not materially contribute to an increase in overall vessel traffic giving rise to potential effects on ornithological receptors.</p> <p>Therefore, there is no impact pathway and therefore no potential for LSE both alone and in combination with other plans and projects.</p>
<p><b>Moray Firth SAC (142.98 km)</b></p>		
<p>Bottlenose dolphin (<i>Tursiops truncatus</i>)</p>	<p>Underwater noise and vibration</p> <p>Vessel disturbance leading to collision risk</p>	<p><b>Screened out</b></p> <p>The SAC is a considerable distance from the Development and the location of the boulder clearance and UXO identification activities.</p> <p>Any noise generated from the activities will be negligible and comparative with background noise therefore it is considered there is no potential for LSE both alone and in combination with other plans and projects.</p> <p>The boulder clearance and UXO identification work will increase vessels in the area however the Moray Firth population is known to regularly travel down the east coast of Scotland (NatureScot, 2021) and historical annual distribution and relative abundance data<sup>4</sup> shown the Development is not within areas of high usage by bottlenose dolphin. Therefore, the chance of encountering bottlenose dolphin is negligible and thus there is no potential for LSE both alone and in combination with other plans and projects.</p> <p>As a result of the boulder clearance and UXO identification activities there is no potential for LSE both alone and in combination with other plans and projects.</p>

<sup>4</sup> <https://marinescotland.atkinsgeospatial.com/nmpi/default.aspx?layers=862>

### 3.3 Summary of LSE Screening

LSE cannot be ruled out for the following designated sites, which are screened in for further assessment (Section 4):

Likely Significant Effects (LSE) cannot be ruled out on the designated site:

- Outer Firth of Forth and St Andrews Bay Complex SPA;
- Forth Islands SPA;
- Isle of May SAC;
- Firth of Tay and Eden Estuary SAC (harbour seal); and
- Berwickshire and North Northumberland Coast SAC (grey seal).

As such, a consideration of the potential for the work to result in adverse effects on site integrity is required. The features and conservation objectives relevant to each European Site are provided within the assessment.

Sites are screened out based upon the lack of connectivity, or due to the negligible potential for environmental effects to arise on receptors from all other European designated sites.

Detail on the potential impacts on screened in receptors are set out in Section 4.

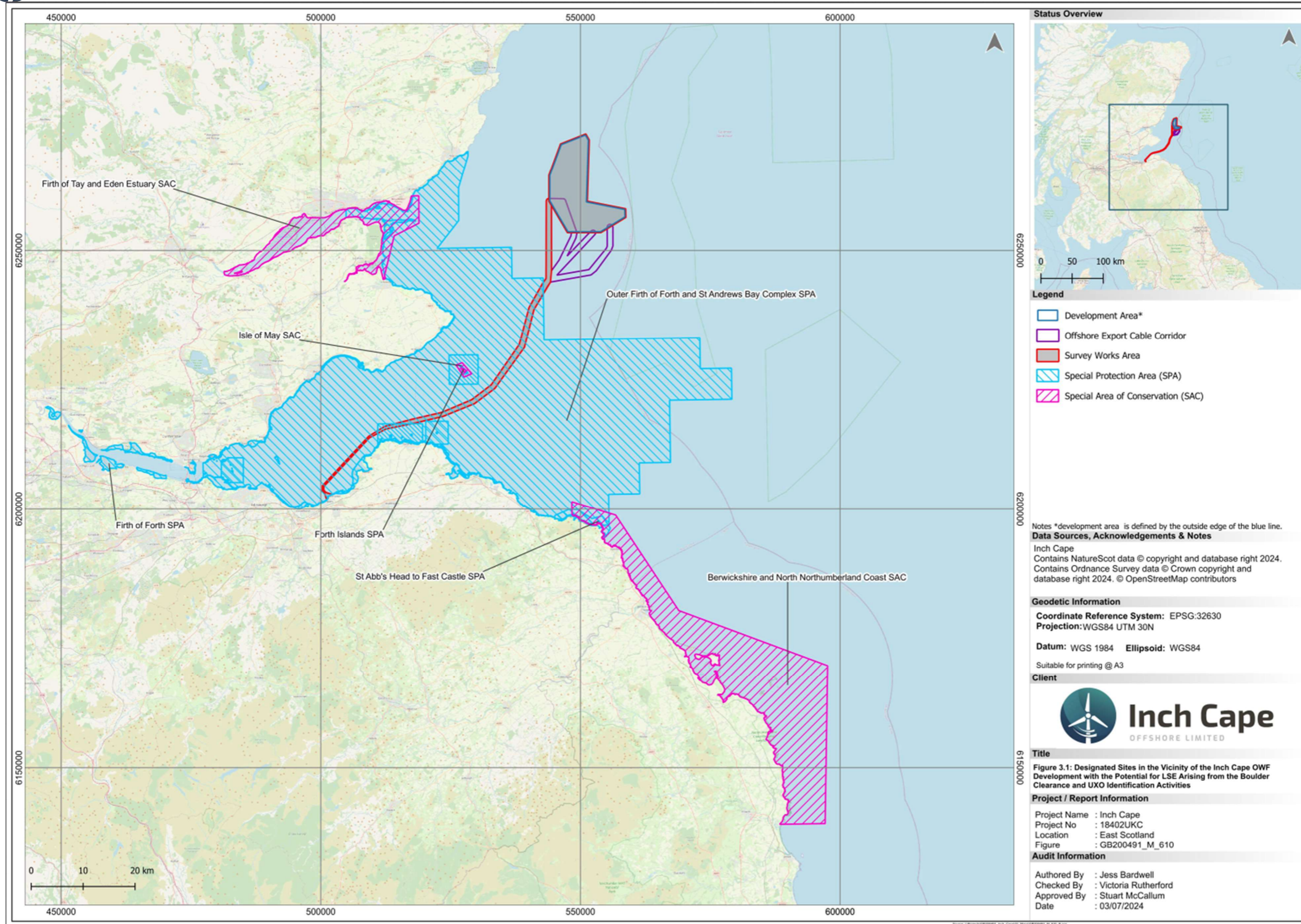


Figure 3.1: Designated Sites in the Vicinity of the Inch Cape OWF Development with the Potential for LSE arising from the Boulder Clearance and UXO Identification works.



## 4 Potential for Adverse Effect on Integrity from the Boulder Clearance and UXO Identification Activities

This section assesses the designated sites where the potential for LSE could not be ruled out on features of conservation interest. Conclusions are drawn based on whether there is the potential for adverse effect on site integrity, arising from the Inch Cape OWF boulder clearance and UXO identification activities, either alone or in combination with those projects and plans listed in Section 3.2.

### 4.1 Outer Firth of Forth and St Andrews Bay Complex SPA

Given the short-term and localised nature of the boulder clearance and UXO identification activities, there will be no adverse effects on the conservation objectives and thus there will be no adverse effect on the site integrity of the Outer Firth of Forth and St Andrews Bay Complex SPA for all features, either alone or in-combination, as a result of the boulder clearance and UXO identification activities.

The site covers an area of 2720.68 km<sup>2</sup> and the boulder clearance and UXO identification activities will directly overlap the designated site.

The conservation objectives for the site are:

- To ensure that the qualifying features of the Outer Firth of Forth and St Andrews Bay Complex SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status
- To ensure that the integrity of the Outer Firth of Forth and St Andrews Bay Complex SPA is restored in the context of environmental changes by meeting the following objectives :
  - The populations of the qualifying features are viable components of the Outer Firth of Forth and St Andrews Bay Complex SPA.
  - The distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species.
  - The supporting habitats and processes relevant to qualifying features and their prey resources are maintained, or where appropriate restored, at the Outer Firth of Forth and St Andrews Bay Complex SPA.

#### 4.1.1 Outer Firth of Forth and St Andrews Bay Complex SPA Assessment

The Outer Firth of Forth and St Andrews Bay Complex SPA and Forth Islands SPA populations are considered functionally linked as a number of species are known to forage and nest across both sites. Common tern are typically assessed as a 'Firth of Forth metapopulation' as there is a degree of interchange between the Outer Firth of Forth and St Andrew's Bay Complex SPA, and the Forth Islands SPA.

The SPA is used to feed, moult, rest, roost and breed. The area provides feeding grounds for many

species including the largest concentration of common terns in Scotland<sup>5</sup>. The SPA is an important refuge for birds which have migrated thousands of miles from breeding grounds in northern Europe and western Siberia to overwinter in the SPA<sup>6</sup>.

### **Vessel disturbance**

There will be increased vessel presence within the SAC due to the boulder clearance and UXO identification activities. Although these have the potential to disturb bird species, temporarily displacing them or affecting foraging behaviour, the area of the Firth of Forth experiences very high shipping densities on a daily basis (an average of 22 and 37 unique vessel movements per day across the Development Area and Offshore Export Cable Corridor respectively (ICOL 2018)) and thus it is expected that all birds who regularly utilise the area will have an increased tolerance for vessel presence in region. The duration of work in any one location will be temporary, with any effects highly localised around the working vessel. Vessels will be moving slowly and in a predictable manner, and any visual or noise related disturbance will therefore be minimal. In addition, the SPA covers a large area and there is an abundance of available and equivalent feeding and loafing habitats in the immediate and wider area.

Accordingly, it is not considered this work will significantly disturb or displace qualifying species. Qualifying features are already acclimated to the high level of vessel traffic in the area which will not be materially altered by the proposed work, the work will be undertaken from vessels moving in a predictable and slow manner, and there is an abundance of equivalent habitat available. It can therefore be concluded there is no potential for adverse effects on site integrity, either alone or in combination with any other plans or programmes from the proposed work.

This is consistent with findings of the HRA for the main construction works which found that based upon the short-term presence of slow-moving vessels, and low levels of visual and noise disturbance, that there would be no adverse effects on site integrity predicted through any effects on SPA qualifying species.

### **Indirect Effects through Impacts on Prey**

There will be increased vessel presence within the SAC due to the boulder clearance and UXO identification activities, where bird species have the potential to show distributional changes due to impacts on prey species. Prey availability has been correlated with breeding success (Bustnes *et al.*, 2013). Fish such as herring and sandeel are a key prey resource where they both have the potential to be impacted by disturbance to the specific sediment, which is relied upon as a key diet component. Long term studies in the Firth of Forth highlighted a long-term decline in the overall prevalence of sandeel in kittiwake chick diet, concomitant with an increase in the relative prevalence of clupeids in Scottish waters (Walness *et al.*, 2018) indicating adaptable diet.

Disruption to the prey habitat at any one location is anticipated to be temporary and of short duration

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<sup>5</sup> <https://www.scotlink.org/species/common-tern/#:~:text=Common%20terns%20nest%20mainly%20in,of%20common%20terns%20in%20Scotland>.

<sup>6</sup> <https://jncc.gov.uk/our-work/outer-firth-of-forth-and-st-andrews-bay-complex-spa/>

and habitat recovery would be rapid, given the existing conditions. In addition, there is extensive adjacent equivalent prey habitat in the surrounding area whereby prey availability will not be affected by the boulder clearance and UXO identification activities. Given the limited impact on prey resource predicted, the short-term and relatively localised nature of the boulder clearance and UXO identification activities, it can be concluded there is no potential for adverse effects on site integrity, either alone or in combination with any other plans or programmes.

## 4.2 Forth Islands SPA

Given the short-term and localised nature of the boulder clearance and UXO identification activities, there will be no adverse effects on the conservation objectives and thus there will be no adverse effect on the site integrity of the Forth Islands SPA for all features, either alone or in-combination, as a result of the boulder clearance and UXO identification activities.

The site covers an area of 97.97 km<sup>2</sup> and the boulder clearance and UXO identification activities will directly overlap the designated site.

The conservation objectives for the site are 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 the 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.

### 4.2.1 Forth Islands SPA Assessment

Forth Islands SPA consists of a series of islands supporting the main seabird colonies in the Firth of Forth. The area is important for a number of key breeding bird species. For many species (namely: Arctic tern, common tern, Atlantic puffin, common guillemot, European Shag, herring gull, black legged kittiwake, northern gannet) (NatureScot, 2022) functional connectivity exists with the Outer Firth of Forth and St Andrew's Bay Complex SPA. A number of species are experiencing a decline in numbers, including fulmar, puffin, razorbill, guillemot, kittiwake (NatureScot, 2016).

#### **Vessel disturbance**

There will be increased vessel presence within the SAC due to the boulder clearance and UXO identification activities. Although these have the potential to disturb bird species, temporarily displacing them or affecting foraging behaviour, the area of the Firth of Forth experiences very high shipping densities on a daily basis (an average of 22 and 37 unique vessel movements per day across the Development Area and Offshore Export Cable Corridor respectively (ICOL, 2018)) and thus it is expected that all birds who regularly utilise the area will have an increased tolerance for vessel presence in region. The duration of work in any one location will be temporary, with any effects highly localised around the working vessel. Vessels will be moving slowly and in a predictable manner, and any visual or noise related disturbance will therefore be minimal. In addition, the SPA covers a large area and there is an abundance of available and equivalent feeding and loafing habitats in the immediate and wider area.

Accordingly, it is not considered this work will significantly disturb or displace qualifying species. Qualifying features are already acclimated to the high level of vessel traffic in the area which will not be materially altered by the proposed work, the work will be undertaken from vessels moving in a predictable and slow manner, and there is an abundance of equivalent habitat available. It can therefore be concluded there is no potential for adverse effects on site integrity, either alone or in combination with any other plans or programmes from the proposed work.

This is consistent with findings of the HRA for the main construction works which found that based upon the short-term presence of slow-moving vessels, and low levels of visual and noise disturbance, that there would be no adverse effects on site integrity predicted through any effects on SPA qualifying species.

#### **Indirect Effects through Impacts on Prey**

There will be increased vessel presence within the SAC due to the boulder clearance and UXO identification activities, where bird species have the potential to show distributional changes due to impacts on prey species. Prey availability has been correlated with breeding success (Bustnes *et al.*, 2013). Fish such as herring and sandeel are a key prey resource where they both have the potential to be impacted by disturbance to the specific sediment, which is relied upon as a key diet component. Long term studies in the Firth of Forth highlighted a long-term decline in the overall prevalence of sandeel in kittiwake chick diet, concomitant with an increase in the relative prevalence of clupeids in Scottish waters (Walness *et al.*, 2018) indicating adaptable diet.

Disruption to the prey habitat at any one location is anticipated to be temporary and of short duration and habitat recovery would be rapid, given the existing conditions. In addition, there is extensive adjacent equivalent prey habitat in the surrounding area whereby prey availability will not be affected by the boulder clearance and UXO identification activities. The work, taking place in Q4 2024 to Q2 2025, is not expected to overlap with any key life history periods of main prey species. Given the limited impact on prey resource predicted, the short-term and relatively localised nature of the boulder clearance and UXO identification activities, it can be concluded there is no potential for adverse effects on site integrity, either alone or in combination with any other plans or programmes.

### 4.3 Isle of May SAC

Given the short-term and localised nature of the boulder clearance and UXO identification activities, there will be no adverse effects on the conservation objectives and thus there will be no adverse effect on the site integrity of the Isle of May SAC for all features, either alone or in-combination, as a result of the boulder clearance and UXO identification activities

The site covers an area of 3.57 km<sup>2</sup> and the boulder clearance and UXO identification are 4.3 km from the designated site.

The conservation objectives (grey seal) for the site are to:

- To avoid deterioration of the habitats of the qualifying species (listed below at 4.3.1) 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 favourable conservation status 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 the site;
  - Distribution and extent of habitats supporting the species;
  - Structure, function and supporting processes of habitats supporting the species;
  - Distribution of typical species of the habitat; and
  - No significant disturbance of the species.

The conservation objectives (reefs) for the site are to:

- Avoid deterioration of qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and
- To ensure for the qualifying habitat that the following are maintained in the long term:
  - Extent of the habitat on site;
  - Distribution of the habitat within the site;
  - Distribution and extent of habitats supporting the species;
  - Structure and function of the habitat;
  - Processes supporting the habitat;
  - Distribution of typical species of the habitat;
  - Viability of typical species as components of the habitat; and

- No significant disturbance of typical species of the habitat.

#### **4.3.1 Isle of May SAC Assessment**

Both of these SAC features are considered to be in favourable (maintained) conservation status (NatureScot, 2024).

##### **4.3.1.1 Grey Seals**

Grey seals inhabit the island year round, but in the autumn, thousands of grey seals gather to give birth and mate, with around 2000 pups born each year, supporting one of the largest breeding group of grey seals in the UK (SNH, 2011; SNH, 2010), with pups born and raised on the shores of the island during the main pupping period (October to January) (SNH, 2011).

Rocky reef surrounds the Isle of May, supporting a significance presence. The reefs are in tide-swept waters, supporting kelp forests and rich marine life, providing the foraging grounds for the seals.

##### **Vessel disturbance and Indirect effects through impacts on prey**

There will be increased vessel presence in the vicinity of the boulder clearance and UXO identification activities due to the boulder clearance and UXO identification activities. These have the potential to disturb prey species, ultimately limiting food availability for grey seals. The grey seal diet in the North Sea is dominated by sandeels (78.5% by weight) and to a lesser extent, by gadoids (8.4%), flatfish (8.8%) and salmon (Thompson *et al.*, 2017; Hammond and Wilson, 2016), however they are known to consume a range of prey species including fish, shellfish, squid and octopus (Scottish Natural Heritage, 2010).

Key prey are present in the wider area (particularly the reef surrounding the Isle of May), and given the ability of grey seals to swim hundreds of kilometres to feed (SNH, 2010) prey availability is not considered to be generally limited.

Vessel disturbance will be short-term and temporary. There is already a high presence of vessel traffic in the area and the work to be undertaken will have predictable, slow vessel movements. It is therefore considered the presence of additional vessels associated with the activities will have a negligible effect on prey availability and therefore foraging success of grey seal feature of the Isle of May SAC. It can therefore be concluded there is no potential for adverse effects on site integrity, either alone or in combination with any other plans or programmes.

##### **Vessel disturbance leading to collision risk**

There will be increased vessel presence in the vicinity of the boulder clearance and UXO identification activities due to the boulder clearance and UXO identification activities. These have the potential to increase the risk of collision with vessels resulting in injury or death, particularly during the autumn pupping period (October to January).

The proposed boulder relocation and pUXO target investigation works will require a maximum of four vessels. The vessels will be stationary during the works and will follow predetermined lines between work sites. The consistent speed and direction of travel employed whilst travelling between work sites will mean that animals can predict the path of the vessels and potentially alter their direction of travel,

thus reducing the risk of collision. Additionally, the presence of up to four survey vessels is unlikely to significantly increase the vessel traffic in the area.

During transits, when vessel speed may be greater, transit watches will be conducted (See EPS-RA (NP Ref: 1356874)).

An observer on the bridge of all vessels will keep watch for EPS, basking sharks and seals during all transits to and from the work sites. Any sightings will be communicated to the Officer on watch as soon as is practicable and the following actions implemented:

- The Officer on watch will ensure that EPS, basking sharks and seals are avoided where safe to do so; and
- The Officer on watch will minimise high powered manoeuvres or rapid changes of course where this does not impair safety.

The observer may be the Officer on watch, Master of the vessel, a member of the bridge crew or another member of the ship's crew. Observers will be briefed on the Scottish Marine Wildlife Watching Code<sup>7</sup> and Basking Shark Code of Conduct<sup>8</sup>.

Although the consequences of collision (injury or mortality) can be severe, the likelihood of occurrence is considered to be extremely low. It can therefore be concluded there is no potential for adverse effects on site integrity, either alone or in combination with any other plans or programmes.

#### **4.3.1.2 Reefs**

##### **Physical disturbance to the seabed leading to an increase in SSC**

The boulder clearance and UXO identification activities have the potential to physically disturb the seabed through sediment clearance around potential UXO, resulting in an increase in SSC within the water column.

Bedrock and stony reef features are sensitive to smothering (> 5 cm is the benchmark used by the Marine Life Information Network (MarLIN)).

Sediment arising from the boulder clearance and UXO identification activities will be limited in volume, being dispersed into the North Sea system which is naturally dynamic with cyclical changes in turbidity. Benthic features are largely adapted to these small fluctuations. The boulder clearance and UXO identification activities will be conducted over a small area and as such, limited volume of sediment arisings into the water column are expected. Given the site is 4.3 km away and with small sediment arisings, there is no expectation that the sediment would travel a considerable distance, or that there is a lot of sediment to settle out and smother features.

It can therefore be concluded there is no potential for adverse effects on site integrity, either alone or

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<sup>7</sup> <https://www.nature.scot/professional-advice/land-and-sea-management/managing-coasts-and-seas/scottish-marine-wildlife-watching-code>

<sup>8</sup> <https://www.sharktrust.org/Handlers/Download.ashx?IDMF=6137b1a1-8518-4327-9922-7b280acb8336>



in combination with any other plans or programmes.

#### 4.4 Firth of Tay and Eden Estuary SAC

Screened in for harbour seal only, estuaries, intertidal mudflats and sandflats, and subtidal sandbanks were screened out.

Given the short-term and localised nature of the boulder clearance and UXO identification activities, there will be no adverse effects on the conservation objectives and thus there will be no adverse effect on the site integrity of the Firth of Tay and Eden Estuary SAC for harbour seal, either alone or in combination, as a result of the boulder clearance and UXO identification activities.

The site covers an area of 154.42 km<sup>2</sup> and the boulder clearance and UXO identification activities are 24.53 km from the designated site.

The conservation objectives (for harbour seal) for the site are to:

- 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 the site makes an appropriate contribution to achieving favourable conservation status 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; and
  - No significant disturbance of the species.

#### 4.4.1 Firth of Tay and Eden Estuary SAC Assessment

##### 4.4.1.1 *Harbour Seal*

The Firth of Tay and Eden Estuary SAC supports a nationally important breeding colony of harbour seal, which forms part of the east coast population of common seals that typically utilise the sandbanks. Around 600 adults haul-out at the site to rest, pup and moult, representing around 2% of the UK population<sup>9</sup>. Harbour seal numbers have been in general decline of around 95% since the early 2000s, although since 2012 their numbers are little changed, albeit at a much-reduced level. The population is unfavourable and in declining condition<sup>10</sup>.

The latest harbour seal population estimate based on counts undertaken in 2015 is 60 individuals (Duck et al. 2016). The latest estimated number of harbour seals within the East Coast Management Area (ECMA) is 311 (95% CI 254 - 415) individuals.

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<sup>9</sup> <https://sac.jncc.gov.uk/site/UK0030311>

<sup>10</sup> <https://sitelink.nature.scot/site/8257>

### **Vessel disturbance and Indirect effects through impacts on prey**

There will be increased vessel presence in the vicinity of the boulder clearance and UXO identification activities due to the boulder clearance and UXO identification activities. These have the potential to disturb prey species, ultimately limiting food availability for harbour seal. The harbour seal diet is the same as grey seal, with a range of prey species including fish, shellfish, squid and octopus. Harbour seal forage over a large distance (50 km (Sharples *et al.*, 2012)) and therefore food availability is not considered to be generally limited.

Vessel disturbance will be short-term and temporary. There is already a high presence of vessel traffic in the area and the work to be undertaken will have predictable, slow vessel movements. It is therefore considered the presence of additional vessels associated with the activities will have a negligible effect on prey availability and therefore foraging success of the harbour seal feature of the Firth of Tay and Eden Estuary SAC. It can therefore be concluded there is no potential for adverse effects on site integrity, either alone or in combination with any other plans or programmes.

### **Vessel disturbance leading to collision risk**

There will be increased vessel presence in the vicinity of the boulder clearance and UXO identification activities due to the boulder clearance and UXO identification activities. The proposed activities have the potential to increase the risk of collision with vessels resulting in injury or death, particularly during the autumn pupping period (June to July) and moulting (August to September). However, given site connectivity was based on a foraging range of 50 km, a typical foraging range is usually around 20 km, remaining close to haul-out and pupping sites (SNH, 2016).

The proposed boulder relocation and pUXO target investigation works will require a maximum of four vessels. The vessels will be stationary during the works and will follow predetermined lines between work sites. The consistent speed and direction of travel employed whilst travelling between work sites will mean that animals can predict the path of the vessels and potentially alter their direction of travel, thus reducing the risk of collision. Additionally, the presence of up to four survey vessels is unlikely to significantly increase the vessel traffic in the area.

During transits, when vessel speed may be greater, transit watches will be conducted (See EPS-RA (NP Ref: 1356874)).

An observer on the bridge of all vessels will keep watch for EPS, basking sharks and seals during all transits to and from the work sites. Any sightings will be communicated to the Officer on watch as soon as is practicable and the following actions implemented:

- The Officer on watch will ensure that EPS, basking sharks and seals are avoided where safe to do so; and
- The Officer on watch will minimise high powered manoeuvres or rapid changes of course where this does not impair safety.

The observer may be the Officer on watch, Master of the vessel, a member of the bridge crew or another member of the ship's crew. Observers will be briefed on the Scottish Marine Wildlife Watching Code<sup>7</sup> and Basking Shark Code of Conduct<sup>8</sup>.



Although the consequences of collision (injury or mortality) can be severe, the likelihood of occurrence is considered to be extremely low. It can therefore be concluded there is no potential for adverse effects on site integrity, either alone or in combination with any other plans or programmes.

## 4.5 Berwickshire and North Northumberland Coast SAC

Screened in for grey seal only, reef features were screened out.

Given the short-term and localised nature of the boulder clearance and UXO identification activities, there will be no adverse effects on the conservation objectives and thus there will be no adverse effect on the site integrity of the Berwickshire and North Northumberland Coast SAC for grey seal, either alone or in-combination, as a result of the boulder clearance and UXO identification activities

The site covers an area of 652.26 km<sup>2</sup> and the boulder clearance and UXO identification activities are 26.45 km from the designated site.

The conservation objectives for the site are to:

- To ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving favourable conservation status 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, and,
  - The distribution of qualifying species within the site.

### 4.5.1 Berwickshire and North Northumberland Coast SAC Assessment

#### 4.5.1.1 Grey Seal

The Berwickshire and North Northumberland Coast SAC provides important habitat for grey seal, supporting approximately 3% (estimated to be between 501 and 1000 grey seals<sup>11</sup>) of the British pup production, with breeding, hauling-out and moulting (spring) occurring on habitats above HAT in areas such as Staple Island (within the Farne Islands).

#### **Vessel disturbance and indirect effects through impacts on prey**

There will be increased vessel presence in the vicinity of the boulder clearance and UXO identification activities due to the boulder clearance and UXO identification activities. These have the potential to disturb prey species, ultimately limiting food availability for grey seals. Seals utilise a variety of habitats, including sediments and rock, to forage for a variety of prey. They may use different areas at different times of the year to target seasonally variable prey<sup>11</sup>. The grey seal diet in the North Sea is dominated

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<sup>11</sup>

<https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK0017072&SiteName=berwickshire&SiteNameDisplay=Berwickshire+and+North+Northumberland+Coast+SAC&countyCode=&responsiblePerson=&SeaArea=&IFCAAarea=&NumMarineSeasonality=1>

by sandeels (78.5% by weight) and to a lesser extent, by gadoids (8.4%), flatfish (8.8%) and salmon (Thompson *et al.*, 2017; Hammond and Wilson, 2016), however they are known to consume a range of prey species including fish, shellfish, squid and octopus (Scottish Natural Heritage, 2010). A range of prey species (including fish, shellfish, squid and octopus (Scottish Natural Heritage, 2010)) are present in the wider area, and given the ability of grey seals to swim hundreds of kilometres to feed (SNH, 2010) prey availability is not considered to be generally limited.

Vessel disturbance will be short-term and temporary. There is already a high presence of vessel traffic in the area and the work to be undertaken will have predictable, slow vessel movements. It is therefore considered the presence of additional vessels associated with the activities will have a negligible effect on prey availability and therefore foraging success of grey seal feature of the Berwickshire and North Northumberland Coast SAC. It can therefore be concluded there is no potential for adverse effects on site integrity, either alone or in combination with any other plans or programmes.

#### **Vessel disturbance leading to collision risk**

There will be increased vessel presence in the vicinity of the boulder clearance and UXO identification activities due to the boulder clearance and UXO identification activities. These have the potential to increase the risk of collision with vessels resulting in injury or death, particularly during the autumn breeding period (mid-September to December)<sup>11</sup>.

The proposed boulder relocation and pUXO target investigation works will require a maximum of four vessels. The vessels will be stationary during the works and will follow predetermined lines between work sites. The consistent speed and direction of travel employed whilst travelling between work sites will mean that animals can predict the path of the vessels and potentially alter their direction of travel, thus reducing the risk of collision. Additionally, the presence of up to four survey vessels is unlikely to significantly increase the vessel traffic in the area.

During transits, when vessel speed may be greater, transit watches will be conducted (See EPS-RA (NP Ref: 1356874)). An observer on the bridge of all vessels will keep watch for EPS, basking sharks and seals during all transits to and from the work sites. Any sightings will be communicated to the Officer on watch as soon as is practicable and the following actions implemented:

- The Officer on watch will ensure that EPS, basking sharks and seals are avoided where safe to do so; and
- The Officer on watch will minimise high powered manoeuvres or rapid changes of course where this does not impair safety.

The observer may be the Officer on watch, Master of the vessel, a member of the bridge crew or another member of the ship's crew. Observers will be briefed on the Scottish Marine Wildlife Watching Code<sup>7</sup> and Basking Shark Code of Conduct<sup>8</sup>.

Although the consequences of collision (injury or mortality) can be severe, the likelihood of occurrence is considered to be extremely low. It can therefore be concluded there is no potential for adverse effects on site integrity, either alone or in combination with any other plans or programmes.

## 5 Summary and Conclusion

A total of 16 sites were screened for LSE. LSE could not be ruled out for five sites which were screened in for further assessment. The boulder clearance and UXO works are relatively small scale and localised at individual targets. Although multiple vessels will be working simultaneously, the vessels and activities will not be concentrated in any one area. Based on the above consideration of impacts on all potential environmental receptors, it can be concluded that the boulder clearance and UXO identification activities (as described in Section 2) will not result in any adverse effects on conservation objectives of sites and no adverse effect onsite integrity of any European Site either alone or in combination with other plans or programmes.

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