



ESTABLISHED 1968

The Finest Salmon from
SCOTLAND



Shadow Habitats Regulations Appraisal Screening Report

Morrison's Rock, Isle of Benbecula

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Glossary of Abbreviations and Terms

Abbreviation / Term	Definition
AA	Appropriate Assessment
ADDs	Acoustic Deterrent Device
AESI	Adverse Effect on Site Integrity
AGD	Amoebic Gill Disease
BFS	Bakkafrost Scotland Ltd.
CMS	Cardiomyopathy Syndrome
CnES	Comhairle nan Eilean Siar
COGP	Code of Good Practice for Scottish Finfish Aquaculture
CSIP	Cetacean Strandings and Investigation Programme
dECP	Draft Escapes Contingency Plan
DMA	Disease Management Area
dPCP	Draft Predator Control Plan
dVMP	Draft Vessel Management Plan
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPS	European Protected Species
EQS	Environmental Quality Standard
EU	European Union
European Sites	SACs, SPAs, and Ramsar sites
FCR	Feed Conversion Ratio
FMA	Farm Management Area
FMS	Farm Management Statement
GIS	Geographic Information System
HRA	Habitats Regulations Appraisal
HSMI	Heart and Skeletal Muscle Inflammation
IPN	Infectious Pancreatic Necrosis
ISLM Plan	Integrated Sea Lice Management Plan
KM	Kilometre
LPA	Local Planning Authority
LSE	Likely Significant Effect
MD-LOT	Marine Directorate Licensing Operations Team
MU	Management Unit (Cetaceans)
NS	NatureScot
PD	Pancreas Disease
RIAA	Report to Inform Appropriate Assessment
SAC	Special Area of Conservation
SCI	Site of Community Interest
SCOS	Special Committee on Seals
SEPA	Scottish Environment Protection Agency
SGMD	Scottish Government's Marine Directorate
SLMS	Sea Lice Management Strategy
SLRF	Sea Lice Regulatory Framework
SMU	Seal Management Unit
SMWWC	Scottish Marine Wildlife Watching Code

Abbreviation / Term	Definition
SOP	Standard Operating Procedure
SPA	Special Protection Area
The Development Area	The Red Line Boundary of the Proposed Development under The Town and Country Planning (Scotland) Act 1997
The Habitats Regulations	The Conservation (Natural Habitats & c.) Regulations 1994 (as amended)
The Proposed Development	The Proposed Morrison's Rock Fish Farm
The Report	The Shadow HRA Screening Report
VHWP	Veterinary health and welfare plan
VTR	Vessel Transit Route
Zol	Zone of Influence

1 Introduction

Bakkafrost Scotland Ltd. (BFS) is proposing to submit a planning application to Comhairle nan Eilean Siar (CnES), under The Town and Country Planning (Scotland) Act 1997 (as amended) for planning permission to install and operate a new marine open pen fish farm, to be known as Morrison's Rock (the Proposed Development).

This shadow Habitats Regulations Appraisal (HRA) Screening Report (the Report) has been produced to inform the shadow HRA for the Proposed Development. It provides information to enable the screening of the Proposed Development with regards to its potential to have Likely Significant Effect (LSE) on European Sites of nature conservation importance alone and in-combination.

1.1 Proposed Development Description

The Proposed Development will be located off the northeast coast of the Isle of Benbecula (see **Figure 1.1**).

The Proposed Development will be comprised of eight 160 m circumference circular pens, held within a single group (2 x 4), and moored within a 100 m x 100 m grid. A feed barge will be permanently moored at the northern end of the grid. Under The Town and Country Planning (Scotland) Act 1997 all equipment will be installed and maintained within the red line boundary (the Development Area) which covers an area of 0.67 km².

Detailed NewDEPOMOD (NDM) modelling, in order to ensure compliance with the Scottish Environment Protection Agency's (SEPA) latest regulatory framework¹, has been undertaken for the Proposed Development. The outputs of this NDM modelling indicate that a maximum biomass of 5,050 T passes SEPA regulatory criteria (**Appendix B**).

No terrestrial development is proposed as part of this project. The Proposed Development will make use of existing aquaculture infrastructure within the area and will be serviced from the existing BFS Kallin shorebase located 3.39 km (straight-line distance) to the northwest of the Proposed Development.

¹ SEPA. Protection of the Marine Environment. Discharges from Marine Pen Fish Farms. A strengthened Regulatory Framework. [Online] Available at: https://www.sepa.org.uk/media/433439/finfish-aquaculture-annex-2019_31052019.pdf

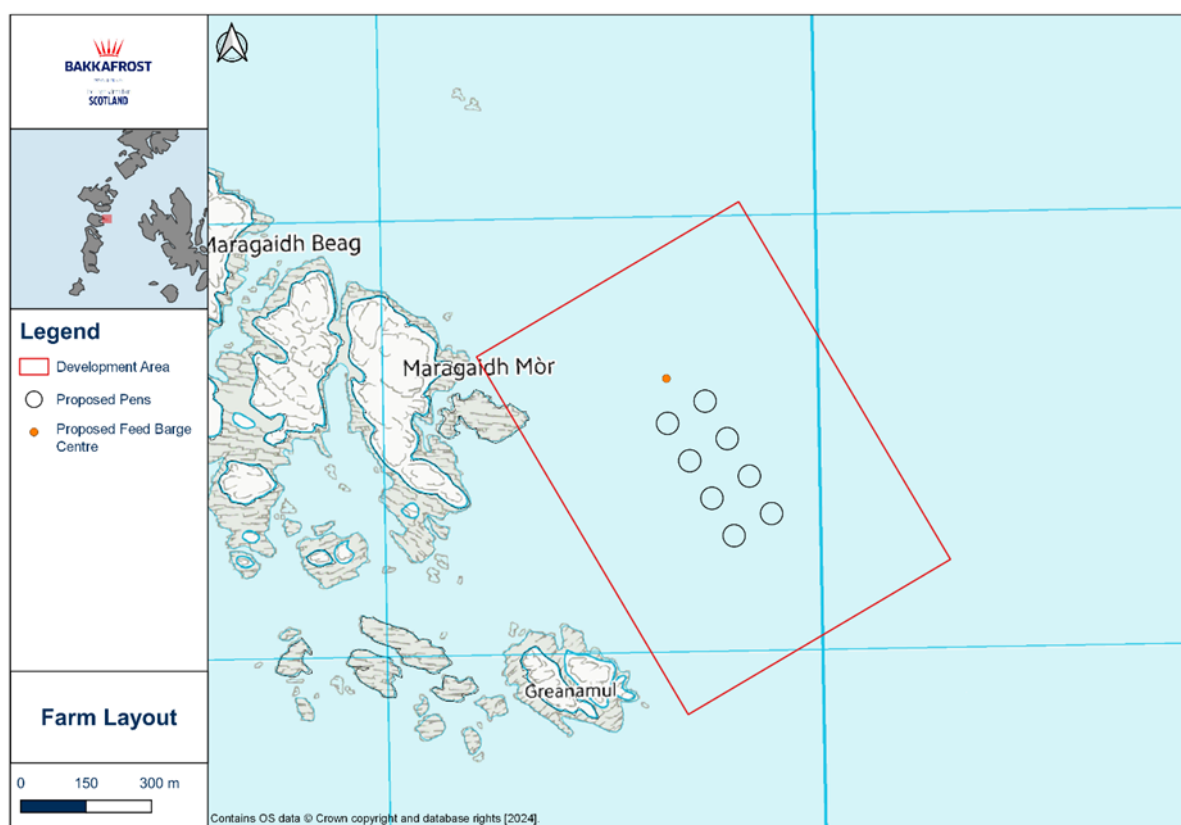


Figure 1.1: Location and layout of the Proposed Development.

1.2 Regulatory Background

The requirements of the Habitats Directive (92/43/EEC)² and the Wild Birds Directive (2009/147/EC)³ are transposed into domestic law in Scotland through The Conservation (Natural Habitats & c.) Regulations 1994 (as amended)⁴ (the Habitats Regulations). The Habitats Regulations apply on land in Scotland and in Scottish inshore waters (the area of sea adjacent to the Scottish coast out to 12 nautical miles). The UK's exit from the European Union (EU) has resulted in changes in terminology regarding the Habitats Regulations. The term 'European Site' is now being used to refer to what was previously known as a 'Natura 2000 Site'. This recognises that Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) protect species and habitats shared across Europe and were originally designated under European legislation. In addition, Ramsar sites, designated under The Convention on Wetlands⁵, are also classified as European Sites.

As a result of the UK's exit from the EU, these designated sites are no longer part of the EU's Natura 2000 network. Instead, they form a UK wide network of designated sites. This UK site network is made up of SACs, SPAs, and Ramsar sites designated at various points in time before the UK's exit day from the EU, and any sites designated under the Habitat Regulations after exit day. The UK site network still

² Council Directive 92/43/EEC: [Online] Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043>

³ Council Directive 2009/147/EC: [Online] Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147>

⁴ Conservation (Natural Habitats &c.) Regulations 1994: [Online] Available at: <https://www.legislation.gov.uk/uksi/1994/2716/contents/made>

⁵ The Convention on Wetlands. Designating Ramsar Sites. [Online] Available at: <https://www.ramsar.org/our-work/wetlands-international-importance/designating-ramsar-sites>

contributes to the delivery of the UK's domestic and international biodiversity objectives. The UK site network, and component SACs, SPAs, and Ramsar sites (European Sites) now form part of the 'Emerald Network', which spans from Europe into Africa. The Emerald Network was established in 1989 under the Bern Convention as an ecological network made up of Areas of Special Conservation Interest. The inclusion of the UK site network, within the Emerald Network, ensures that the UK continues to meet its obligations under the Bern Convention. It is Scottish Government policy to afford the same level of protection to 'proposed SPAs, 'candidate SACs, and Site of Community Importance (SCI) as fully classified and designated European Sites.

1.3 Overview of the Habitats Regulations Appraisal Process

In accordance with the Habitats Regulations, where a plan or project could affect a European Site, the Habitats Regulations require the competent authority to consider the following, under Regulation 48(1):

A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which:

- a) Is likely to have a significant effect on a European site in Great Britain or a European offshore marine site (either alone or in combination with other plans or projects); and
- b) Is not directly connected with or necessary to the management of the site.

Shall make an appropriate assessment (AA) of the implications for the site in view of that site's conservation objectives.

This process is commonly known as HRA. HRA applies to any plan or project which has the potential to affect the qualifying features of a European Site, even when the plan or project is located outwith the boundary of the European Site. The competent authority, in this case CnES, will decide whether an AA is necessary and carry it out, with advice from NatureScot (NS), if required. It is the responsibility of BFS (as the developer), under Regulation 48(2) to provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable the competent authority to determine whether an AA is required.

1.3.1 The Staged Process of HRA

Figure 1.2 summarises the HRA process when determining whether or not a plan or project, such as the Proposed Development, could affect a European Site.

For the Proposed Development, Stage 1 is addressed in **Sub-Section 1.1**. With regards to Stage 2, as the Proposed Development is not directly connected with or necessary to site management for nature conservation, the Proposed Development is expected to progress to Stage 3. At this point, the HRA process occurs across a number of stages, these stages are summarised in **Table 1.1**.

The need for, and the content of each stage will be informed by the previous stages. If it is determined through Stage 3 that the plan or project would not result in LSE on any European Site, the subsequent stages, including the AA, are not required.

This Report provides the information required to inform Stage 3 (Screening) for the Proposed Development.

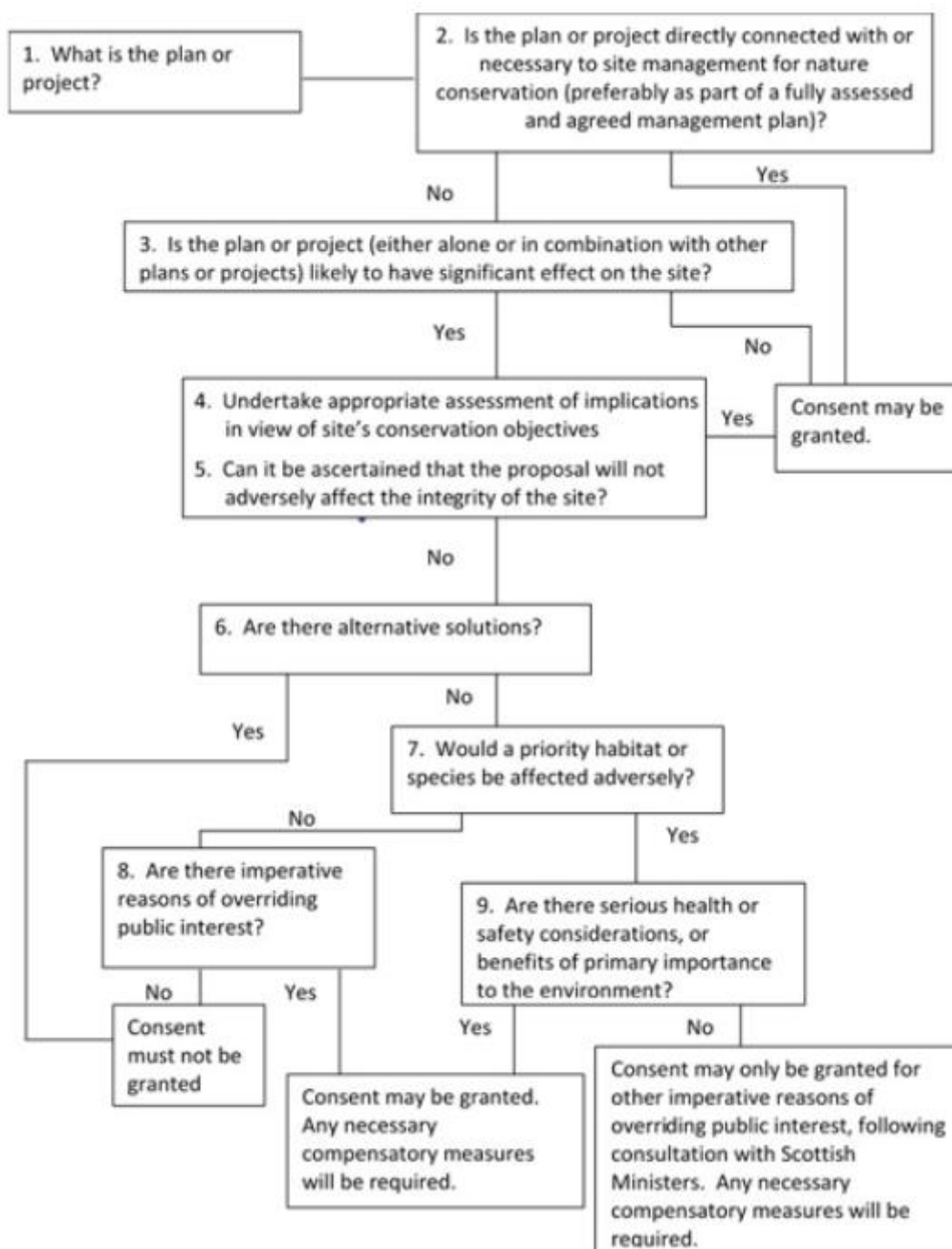


Figure 1.2: Staged HRA process outlining how to consider plans and projects that could affect European Sites.

Table 1.1: Key stages of the HRA process.

Stage	Summary
Stage 3: Screening (Is the plan or project likely to result in LSE?)	Determination of the potential for the plan or project to result in LSE on European Sites, either alone or in-combination with other projects or plans.
	Embedded mitigation measures determined to

Stage	Summary
	represent mitigation that is essential or intrinsic to the Proposed Development, or which is employed as best practice are considered at this stage.
Stages 4 and 5: Appropriate Assessment (AA) and Determination of Adverse Effect on Site Integrity (AESI)	An RIAA is prepared, to provide the Competent Authority with the necessary information to determine whether the plan or project will have an AESI on any European Site for which LSE was predicted at Stage 3. Consideration is here given to any planned mitigation measures within the proposal.
Stage 6: Examination of Alternative Solutions	If the AA cannot rule out potential AESI, then alternative options for the plan or project must be considered.
Stage 7: Would a Priority Species and / or Habitat be Adversely Affected?	To determine if the assessment includes a priority habitat or species (if the answer is yes, an additional step, Step 9, is required).
Stage 8: Are There Imperative Reasons of Overriding Public Interest?	Where no alternative solutions are determined to be possible, assessment will be undertaken to determine whether there is an overriding public interest for the plan or project to be consented.
Stage 9: Are there Serious Health or Safety Considerations, or Benefits of Primary Importance to the Environment? (This Stage is only considered if a Priority Species or Habitat would be Adversely Affected (Stage 7))	Where no alternative solutions are determined to be possible, the only instances where plans or projects which have a AESI on a European Site's qualifying priority interest may be allowed to proceed are where exceptional health, safety or environmental benefits results, or where, following referral to the Scottish Ministers, there is agreement that there are other imperative reasons of overriding public interest.

2 Embedded Mitigation

The embedded mitigation measures presented in **Table 2.1** are determined to represent mitigation that is essential or intrinsic to the Proposed Development, or which is employed as best practice, irrespective of the potential for LSE on a European Site. Therefore, in line with the NS guidance note 'The handling of mitigation in Habitats Regulations Appraisal – the People Over Wind CJEU judgement'⁶, these intrinsic and best practice mitigation measures have been considered when determining LSE as part of the screening stage (**Sub-Section 3.1**).

⁶ NS. The handling of mitigation in Habitats Regulations Appraisal – the People Over Wind CJEU judgement. [Online] Available at: <https://www.nature.scot/sites/default/files/2019-08/Guidance%20Note%20-%20The%20handling%20of%20mitigation%20in%20Habitats%20Regulations%20Appraisal%20-%20the%20People%20Over%20Wind%20CJEU%20judgement.pdf>

Table 2.1: Summary of the embedded mitigation measures and their relevance to the identified impacts of the Proposed Development.

Embedded Measure	Mitigation	Description	Relevance
Development Location		The dispersion potential of the development location will allow for organic material and in-feed residue discharges to be dispersed to low levels over a wide area.	Loss of or damage to prey supporting habitats
NewDEPOMOD Modelling		NDM modelling for the Proposed Development will be undertaken for both organic and in-feed residue deposition, with final biomass and in-feed amounts compliant with SEPA regulatory criteria.	Loss of or damage to prey supporting habitats
Containment Net Strategy		High rigidity primary containment netting will be installed at the Proposed Development, this netting will also be correctly tensioned via a sinker tube system. As standard the primary containment netting will have a mesh size of 18 mm.	Entanglement and entrapment; and Potential genetic introgression and competition between farmed and wild salmonids
Pole Mounted Top Net System		The Proposed Development will make use of a pole-mounted top net system. The top netting will have a ceiling mesh size of 100 mm and a sidewall mesh size of 75 mm. These mesh size dimensions are aligned with NS guidance ⁷ . Top netting will be inspected and re-tensioned on a daily basis as part of the containment checks and records of this will be held onsite. Maintenance will be conducted as and when required, based on the findings of the daily containment checks.	Entanglement and entrapment
Pellet Detection Software		The primary aim of the deployment of this software is to maximise fish growth as well as to reduce the amount of excess feed being distributed to the stock, which is anticipated to reduce potential organic deposition impacts on the benthos.	Loss of or damage to prey supporting habitats
Best Practice Husbandry Procedures		Best practice husbandry procedures are anticipated to promote high levels of fish health and welfare, limiting the incidence of disease at the Proposed Development, whilst also helping to avoid and reduce interactions with predatory species, namely seals, which subsequently reduces the potential for containment breaches.	Entanglement and entrapment; Potential genetic introgression and competition between farmed and wild salmonids; and Disturbance in vicinity of the Proposed Development
Acoustic Deterrent Devices (ADDs)		BFS will not use ADDs as standard practice at the Proposed Development. In circumstances of exceptional welfare concern for stocked fish, BFS will consult with NS, the Local Planning Authority (LPA), and the Marine Directorate Licensing Operations Team (MD-LOT) to discuss how best to proceed and to obtain approval for any ADD use. It is likely that a European Protected Species (EPS) licence will be required for all currently available ADDs and this can be applied for via the MD-LOT who will consult with NS on any applications.	Underwater noise, with the potential to cause disturbance and exclusion
Anti-Predator Netting		BFS will not use anti-predator nets as a standard measure at the Proposed Development. In circumstances of exceptional welfare concern for stocked fish, BFS will consult with NS and the LPA on the feasibility and potential for use of anti-predator nets at the Proposed Development.	Entanglement and entrapment
Draft Predator Control Plan (dPCP)		The dPCP for the Proposed Development (Appendix D) provides a wildlife assessment, that identifies the primary predatory species likely to be present within the vicinity of the Proposed Development. The dPCP also outlines the proactive, passive, and adaptive management measures in place to mitigate against interactions with predatory species.	Entanglement and entrapment; and Potential genetic introgression and competition between farmed and wild salmonids
Farm Design and Layout		The Proposed Development will make use of fewer, but larger pens. This will help limit the spatial extent of the Proposed Development in relation to the seabed and benthic environment.	Disturbance in vicinity of the Proposed Development; Direct displacement from the Proposed Development's footprint; and Loss of or damage to prey supporting habitats
Environmental Standards (EQSs)	Quality	Discharge limits for the Proposed Development represent discharge quantities that have been modelled and show full compliance to the relevant EQSs.	Loss of or damage to prey supporting habitats
Feed Control and Monitoring		Fish feed used by BFS across all marine farming operations has been developed to mimic the natural diet of Atlantic salmon, and is highly digestible, helping to improve Feed Conversion Ratios (FCRs). BFS focuses on ensuring an optimal diet is produced and provided to stocked fish. This optimised feed ensures efficient nutrient conversion, meaning that the amount	Loss of, or damage to prey supporting habitats

⁷ NS. Interim Technical Briefing Note - Pole-mounted top nets and birds at finfish farms. [Online] Available at: <https://www.nature.scot/doc/interim-technical-briefing-note-pole-mounted-top-nets-and-birds-finish-farms>

Embedded Measure	Mitigation	Description	Relevance
		<p>of soluble nutrients released as waste is minimised.</p> <p>Feeding operations will be conducted from either the feed barge or the shorebase where feed input can be adjusted as required and high-definition cameras, within each pen, allow for close monitoring of the feed response, allowing real-time adjustments and cessation of feeding when required. In doing so, feed wastage is reduced and the potential for organic deposition beneath the pens is minimised.</p> <p>Marine staff will also receive specific in-house training as part of the 'feed, feeding, fish growth and development' section of the Marine Competency Framework.</p>	
Fallowing		At present, SEPA require that there is a minimum period of 28 consecutive days between every production cycle during which no commercial species shall be kept onsite. This will help avoid potential impacts for temporary periods.	<p>Entanglement and entrapment;</p> <p>Loss of or damage to prey supporting habitats;</p> <p>Potential sea lice transfer from farmed to wild salmonids;</p> <p>Potential disease transfer from farmed to wild salmonids; and</p> <p>Potential genetic introgression and competition between farmed and wild salmonids</p>
Enforcement		Through the Water Environment (Controlled Activities) (Scotland) Regulations 2011, SEPA has enforcement powers to decrease the maximum biomass if a fish farm is deemed to continuously not comply with benthic quality standards.	Loss of or damage to prey supporting habitats
Draft Vessel Management Plan (dVMP)		<p>To ensure best practice in terms of marine vessel management associated with the Proposed Development, all primary service vessels will be operated in line with the dVMP (Appendix E).</p> <p>The dVMP details general vessel management protocols, as well as specific wildlife protocols. These protocols are designed to avoid or reduce the potential interactions between marine vessels and wildlife, including cetaceans, seabirds, seals, and basking sharks.</p> <p>The vessel management protocols are based upon best practice guidance outlined within The Scottish Marine Wildlife Watching Code (SMWWC)⁸; and A Guide to Best Practice for Watching Marine Wildlife⁹.</p>	<p>Disturbance in vicinity of the Proposed Development; and</p> <p>Marine vessel activity, with the potential to cause disturbance, injury and mortality</p>
Mooring and Grid System		The proposed mooring system will be modelled against environmental conditions specific to the development location. The resulting outputs from the modelling will be used to design a bespoke mooring system to ensure that during periods of elevated sea state the mooring system will hold the pens and associated infrastructure in place.	Potential genetic introgression and competition between farmed and wild salmonids
Farm Management Statement (FMS)		The Proposed Development will be located within Code of Good Practice for Scottish Finfish Aquaculture (CoGP) Farm Management Area (FMA) W-15. All operational activities onsite will be in line with CoGP and the Scottish Government's Marine Directorate (SGMD) recommendations.	<p>Potential sea lice transfer from farmed to wild salmonids;</p> <p>Potential disease transfer from farmed to wild salmonids; and</p> <p>Potential genetic introgression and competition between farmed and wild salmonids</p>
Veterinary Health and Welfare Plan (VHWP)		All BFS fish farms operate under a VHWP, this will also be the case for the Proposed Development. The VHWP details the procedures and documentation relating to the health and welfare of fish held at the specific fish farm. All procedures are targeted at preventative rather than remedial action. The content of the VHWP has been specifically designed to achieve the following aims:	<p>Potential sea lice transfer from farmed to wild salmonids;</p> <p>Potential disease transfer from farmed to wild salmonids; and</p>

⁸ NS: Scottish Marine Wildlife Watching Code (SMWWC). [Online] Available at: <https://www.nature.scot/doc/scottish-marine-wildlife-watching-code-smwwc>

⁹ NS: A Guide to Best Practice for Watching Marine Wildlife. [Online] Available at: <https://www.nature.scot/doc/guide-best-practice-watching-marine-wildlife-smwwc>

Embedded Measure	Mitigation	Description	Relevance
		<ul style="list-style-type: none"> The prevention of the introduction of disease onto fish farms and the prevention of the spread of disease between fish farms; The reduction and elimination of factors which predispose to disease; The reduction of disease incidence; The maintenance of an environment and systems of management and husbandry which reflect best practice in terms of maintaining fish health and welfare; and The establishment of a monitoring and reporting structure which ensures adequate fish health surveillance, early warning of any potential health or welfare problem, rapid action and follow up. 	Potential genetic introgression and competition between farmed and wild salmonids
Draft Escapes Contingency Plan (dECP)		The Proposed Development will have an dECP (Appendix C) in place. The plan outlines the mechanisms what will be in place to ensure effective maintenance of the containment units. The plan also clearly outlines the actions to be taken in the event of an escape and the post-notification actions. All the containment and notification measures outlined within the dECP are aligned with the requirements of both the CoGP and The Fish Farming Business (Record Keeping) (Scotland) Order 2008.	Potential genetic introgression and competition between farmed and wild salmonids
Environmental Management Plan (EMP)		<p>As part of a suite of measures to understand potential impacts on and monitor wild salmonid populations, the EMP details the BFS commitment to achieving the four primary objectives:</p> <ul style="list-style-type: none"> Report on the level of sea lice released into the environment; Identify the likely area(s) of sea lice dispersal from the farm; Provide details of the monitoring data that will be collected to assess potential interactions with wild salmonids; and Provide details on how this monitoring information will feed back to management practice. <p>The EMP for CoGP FMA W-15 is provided in Appendix H.</p>	<p>Potential sea lice transfer from farmed to wild salmonids;</p> <p>Potential disease transfer from farmed to wild salmonids; and</p> <p>Potential genetic introgression and competition between farmed and wild salmonids.</p>
Sea Lice Management Strategy (SLMS)		The Proposed Development will be operated in line with the SLMS. The SLMS provides an overarching framework of strategic principles under which sea lice will be managed across all BFS marine fish farms.	Potential sea lice transfer from farmed to wild salmonids
Integrated Sea Lice Management (ISLM) Plan		The Proposed Development will implement the ISLM Plan, which provides guidance on how the SLMS measures are to be implemented. The aim of the ISLM Plan is to actively reduce the use of medicinal products (which will reduce the amount potentially discharged from the Proposed Development).	Potential sea lice transfer from farmed to wild salmonids
Fish Health Intervention Capacity		In line with the ISLM Plan, BFS actively prioritises mechanical and freshwater interventions over traditional chemical interventions. In order to effectively carry out this intervention strategy, BFS has invested heavily in fish health intervention vessel capacity, with FLS vessels and dual FLS and freshwater wellboats. These vessels will be available for deployment at the Proposed Development.	<p>Potential sea lice transfer from farmed to wild salmonids; and</p> <p>Potential disease transfer from farmed to wild salmonids</p>
SEPA Sea Lice Regulatory Framework (SLRF)		<p>As of March 2024, SEPA took on the responsibility of lead regulator responsible for the management of sea lice and wild salmonid interactions.</p> <p>As such, all Controlled Activities Regulations (CAR) Licence applications for new farms, and applications to vary existing farms, will be assessed by SEPA to determine whether they could pose a risk to wild salmonid populations.</p> <p>Where, based on this risk assessment, SEPA concludes that action is required to manage interactions to protect wild salmonids, SEPA will set permit conditions, within the CAR Licence, that limit the maximum number of sea lice on the farm when authorising the Proposed Development; or, if necessary, SEPA will refuse to authorise the Proposed Development.</p> <p>If SEPA concludes that the relative risk to wild salmonids posed by the Proposed Development is very low, no further action will be required.</p>	Potential sea lice transfer from farmed to wild salmonids
Wildlife Logbook Monitoring		The Proposed Development will keep a logbook of all wildlife noted in the vicinity. This will include a comment on the interaction type, e.g., distant sighting, or direct interaction with fish farm infrastructure. This wildlife logbook will help understand patterns in species utilisation of the area over time.	Linked to all potential impacts, indirectly

Embedded Measure	Mitigation	Description	Relevance
Environmental Plan	Monitoring	A farm specific monitoring plan will be implemented to monitor seabed impacts from the Proposed Development in order to assess compliance with the seabed standards outlined by SEPA. This is a requirement under the SEPA CAR licence.	Loss of or damage to prey supporting habitats

3 Screening Assessment

3.1 Identification of European Sites Relevant to the Proposed Development

3.1.1 Screening Methodology

A key aspect of HRA screening involves establishing the likely Zone of Influence (Zol) of the plan or project. The Zol is the predicted spatial extent over which effects are anticipated to occur. The Zol has been used to establish search areas within which designated sites are screened for relevant qualifying features. Therefore, the Zol and search areas (distances from the Proposed Development) have been applied taking into consideration the specific ecology of individual qualifying features. Justification for the spatial extent of the Zol and search areas is provided within **Table 3.1**.

Screening conclusions have been determined based on the following criteria for 'screened in' and 'screened out':

- **Screened in:** An impact pathway between the Proposed Development and a qualifying feature can be identified that is likely to result in a significant effect, or an impact pathway between the activities and a qualifying feature can be identified but it is uncertain whether or not a significant effect is likely; and
- **Screened out:** Either an impact pathway between the Proposed Development and a qualifying feature cannot be identified or an impact pathway exists but there is no physical overlap of the impact and the qualifying feature, or because any potential effects would be insignificant, being so restricted or remote from the Proposed Development that they would not result in LSE.

Table 3.1: Maximum extent of the potential Zol of the Proposed Development.

Qualifying Feature Type	Potential Impact Pathway	Primary Zol (Spatial Extent of the Impact)	Secondary Zol(Spatial Extent of Effect) and Search Area
Benthic habitats and sessile benthic species or benthic species of low mobility	Organic material deposition as a result of the operation of the Proposed Development	The Zol of this impact pathway is defined by the spatial extent of the organic material NDM mixing zone. Organic Material Mixing Zone: 206,979 m ² .	Due to the sessile and low mobility nature of benthic features, the primary Zol also represents the spatial extent over which effects are likely. As such, for benthic features the primary and secondary Zol are determined to be the same.
	In-feed residue deposition as a result of the operation of the Proposed Development	The Zol of this impact pathway is defined by the spatial extent of the in-feed residue NDM mixing zone. In-feed Residue Mixing Zone: 163,333 m ² .	
	Physical disturbance due to the mooring system of the Proposed Development	The Zol of this impact pathway is defined by the spatial extent of the grid and feed barge mooring system. Particularly the spatial extent of direct contact between the mooring lines and anchors and the seabed. At present a detailed mooring analysis is yet to be undertaken. As such, to represent the worse-case scenario the total spatial extent of the Development Area is considered to represent the Zol for this impact pathway. This Zol will be refined during the design process.	
Bird Species	Entanglement or entrapment in top, pen, or anti-predator netting	The Zol of entanglement and entrapment is defined by the direct spatial extent of the surface and sub-surface netting deployed at the Proposed Development. Surface Netting Area (lateral and ceiling surface): Per Pen: 3,316.18 m ² ; and Total: 26,529.44 m ² . Sub-Surface Netting Area (lateral surface only): Per Pen: 2,879.46 m ² ; and Total: 23,035.68 m ² .	Due to the large distances some bird species forage over, there is the potential for ornithological features to have connectivity with the Proposed Development over extensive spatial extents. Therefore, the mean foraging range ¹⁰ for qualifying features of European Sites have been reviewed to determine connectivity. In the context of the overall foraging range available to qualifying features, only features within mean foraging range are determined to have connectivity with the Proposed Development ¹⁰ .
	Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)	The Zol of disturbance is defined by the distance at which an individual would display a response to the source of the disturbance. This distance is often species specific and will vary with ecological sensitivity. The indicative VTR outlines a 3.86 km route from the shorebase to the Proposed Development.	
	Direct displacement from the footprint of the Proposed Development	The Zol of direct displacement is defined by the spatial extent of the infrastructure along with the specific sensitivity of the feature. Spatial Extent of the Proposed Development: Development Area: 0.67 km ² .	

¹⁰ Woodward, I., Thaxter, C.B., Owen, E and Cook, A.S.C.P. (2019). Desk-based revision of seabird foraging ranges used for HRA screening. Report of work carried out by the British Trust for Ornithology on behalf of NIRAS and The Crown Estate. BTO Research Report No. 724. [Online]
Available at: <https://www.marinedataexchange.co.uk/>

Qualifying Feature Type	Potential Impact Pathway	Primary Zol (Spatial Extent of the Impact)	Secondary Zol(Spatial Extent of Effect) and Search Area
	Loss of, or damage to prey-supporting habitats	<p>The Zol of loss of, or damage to prey-supporting habitats is defined by the spatial extent of the organic and in-feed deposition mixing zones along with the mooring system (grid and feed barge) footprint.</p> <p>Spatial Extent of Modelled Mixing Zones: Organic material deposition: 206,979 m²; and</p> <p>In-feed deposition: 163,333 m².</p> <p>Spatial extent of the Mooring System: Mooring Area: 0.67 km².</p>	
Marine Mammals (Including; Seals, Cetaceans, and European Otter)	Marine vessel activity, with the potential to cause disturbance, injury or mortality	<p>The Zol of this impact pathway is defined by the VTR taken by the fish farm vessels servicing the Proposed Development.</p> <p>The indicative VTR outlines a 3.86 km route from the shorebase to the Proposed Development.</p>	<p><u>Seal Species:</u></p> <p>Both common and grey seals are highly mobile, as such, there is the potential for individuals from European Sites located outwith the primary Zol to transit through the primary Zol and therefore be impacted and affected by the identified impact pathways.</p> <p>As such, the secondary Zol and search area is considered to be the foraging range of both seal species, which for common seal is 50 km and for grey seal is 100 km.</p> <p><u>Cetaceans:</u></p> <p>Both harbour porpoise and bottlenose dolphin, the Annex II² cetacean species present within UK waters, are highly mobile, as such, there is the potential for individuals from European Sites located outwith the primary Zol to transit through the primary Zol and therefore be impacted and affected by the identified impact pathways.</p>
	Underwater noise, with the potential to cause disturbance and exclusion	The Zol of this impact pathway is defined by the VTR and a species specific disturbance buffer.	
	Entanglement in fish farm infrastructure, with the potential to cause injury or mortality	<p>The Zol of this impact pathway is defined by the spatial extent of the sub-surface netting deployed at the Proposed Development.</p> <p>Sub-Surface Netting Area (lateral surface only): Per Pen: 2,400.00 m²; and Total: 19,200.00 m².</p>	

Qualifying Feature Type	Potential Impact Pathway	Primary Zol (Spatial Extent of the Impact)	Secondary Zol(Spatial Extent of Effect) and Search Area
	Loss of, or damage to, prey supporting habitats	<p>The Zol of loss of, or damage to prey supporting habitats is defined by the spatial extent of the organic and in-feed deposition mixing zones along with the mooring system (grid and feed barge) footprint.</p> <p>Spatial Extent of Modelled Mixing Zones: Organic material deposition: 206,979 m²; and</p> <p>In-feed deposition: 163,333 m².</p> <p>Spatial extent of the Mooring System: Mooring Area: 0.67 km².</p>	<p>As such, the secondary Zol and search area is considered to be the relevant Cetacean Management Unit (MU)¹¹, which in the case of the Proposed Development is the West Scotland MU for harbour porpoise and the Coastal West Scotland and Hebrides MU for bottlenose dolphin.</p> <p><u>European Otter:</u> Coastal European otter are known to have a much reduced foraging range in comparison to inland / freshwater European otter, primarily due to the plentiful food resource associated with the marine environment. In general coastal European otter have home ranges between 4 and 5 km¹². The 5 km upper limit to their home range represents the secondary Zol and search area.</p>
Atlantic Salmon and Freshwater Pearl Mussels	Potential sea lice transfer from farmed to wild salmonids	<p>Sea lice may be released from the Proposed Development, in the event that sea lice populations become established onsite.</p> <p>Therefore, the impact is associated with the spatial extent of the Proposed Development, as only pens with farmed Atlantic salmon may release sea lice into the water column. However, despite the point source nature of the initial release of sea lice, dispersal over a wider area is likely to occur due to hydrological connectivity.</p> <p>Sea lice modelling studies that have been reported on in the literature indicate viable sea lice larvae may be transported up to 15 km from their point source. With infective stage, copepodid larvae, peaking between 7 and 12 km seaward of their point source¹³.</p> <p>As such, based on these modelling studies a precautionary primary Zol of 15 km has been applied.</p>	<p>Due to the migratory behaviour of wild salmonids during the marine phase of their lifecycle, there is the potential for salmonids from a wide spatial area to transit through the primary Zol of the Proposed Development. As such a precautionary secondary Zol of 35 km has been applied.</p>

¹¹ IAMMWG. 2022. Updated abundance estimates for cetacean Management Units in UK waters. JNCC Report No. 680 (Revised March 2022), JNCC Peterborough, ISSN 0963-8091. [Online] Available at: <https://hub.jncc.gov.uk/assets/3a401204-aa46-43c8-85b8-5ae42cdd7ff3>

¹² International Otter Survival Fund (IOSF). Eurasian Otter (*Lutra lutra*). [Online] Available at: <https://www.otter.org/eurasian-otter>

¹³ Gillibrand, P.A. and Willis, K.J., 2007. Dispersal of sea louse larvae from salmon farms: modelling the influence of environmental conditions and larval behaviour. Aquatic Biology, 1(1), pp.63-75. [Online] Available at: <https://www.int-res.com/abstracts/ab/v1/n1/p63-75/>

Qualifying Feature Type	Potential Impact Pathway	Primary Zol (Spatial Extent of the Impact)	Secondary Zol(Spatial Extent of Effect) and Search Area
	Potential disease transfer from farmed to wild salmonids	<p>Pathogens may be shed from infected salmonids either from wild or farmed origin. As such, if farmed Atlantic salmon shed pathogens into the water column there is the potential for transfer to both other farmed and wild salmonids.</p> <p>Despite the initial release of pathogens being associated with the point source release from the pens of the Proposed Development, due to hydrological connectivity, pathogens may be transported over large distances within the marine environment. The exact distance will be dependent on the specific pathogen and the local hydrological regime.</p> <p>Based upon SGMD guidance on separation distance for disease management areas (DMA) a precautionary primary Zol of 7.26 km is proposed. This is based the 7.258 km tidal excursion distance for a current speed of 0.51 m/s. Current velocity data for the Proposed Development is well below the 0.51 m/s stated in the SGMD guidance and therefore this primary Zol is considered highly precautionary.</p>	
	Potential genetic introgression and competition between farmed and wild salmonids	<p>Farmed Atlantic salmon may escape from the Proposed Development, in the highly unlikely event of containment failure.</p> <p>Whilst the initial escape of farmed Atlantic salmon is considered to be a point source release from the Proposed Development, due to hydrological connectivity, these escapee salmon may travel large distances within the marine environment, potentially even entering freshwater systems.</p> <p>To account for this, a precautionary primary Zol of 35 km has been applied.</p>	
Terrestrial species/Habitats	N/A	Scoped Out	The Proposed Development will be constructed and operated solely in the marine environment.

3.1.2 Special Protection Areas (SPAs)

The Proposed Development is within the foraging range of several species of birds that are qualifying features of SPAs designated to offer protection to internationally important populations in the wider area. Geographic Information System (GIS) was used to identify SPAs with qualifying features that could potentially be present within the Development Area, based on mean foraging range¹⁰. A total of 20 SPAs were identified through the initial connectivity criteria relating to mean foraging range¹⁰. The second screening step was to apply 'at-sea flight distances' between the SPAs and the Proposed Development that had significant overland straight-line distances, this step resulted in one SPA being screened out.

Once SPAs with potential connectivity were identified, the assessment screened each SPA and qualifying feature for an impact pathway. The identification of an impact pathway between the Proposed Development and a SPA resulted in the determination of connectivity. For SPAs that met this threshold for connectivity, a further screening stage was conducted to determine if LSE was anticipated in relation to each of the impact pathways identified.

The results of the SPA screening process for the Proposed Development are shown in **Table 3.2**.

Table 3.2: Impact pathway screening assessment for SPAs.

SPA Name	Qualifying Features	Straight-line Distance from Proposed Development (km)	Qualifying Features with Potential Connectivity	Development Phase	Potential Impact Pathway	Potential for LSE	Screening Outcome
Auskerry	Arctic tern (<i>Sterna paradisaea</i>) breeding, storm petrel (<i>Hydrobates pelagicus</i>) breeding	321.34	Storm petrel breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 321.34 km (at-sea distance) from the Proposed Development the storm petrel feature has potential connectivity based upon mean foraging range ¹⁰ . However, in the context of the extensive mean foraging range of the storm petrel, the fact that storm petrels are pelagic in their habits and are generally found over the continental shelf ¹⁴ , the location of the Proposed Development within inshore waters, and the limited spatial extent of the Proposed Development, it is determined that the Proposed Development will not result in LSE, either alone or in-combination.	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Screened Out
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)		Screened Out
					Direct displacement from the footprint of the Proposed Development		
					Loss of, or damage to prey-supporting habitats		
				Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area		Screened Out
Canna and Sanday	Common guillemot (<i>Uria aalge</i>) breeding, herring gull (<i>Larus argentatus</i>) breeding, black-legged kittiwake (<i>Rissa tridactyla</i>) breeding, Atlantic puffin (<i>Fratercula arctica</i>) breeding, seabird assemblage breeding, and European shag (<i>Gulosus aristotelis</i>) breeding	52.53	Black-legged kittiwake breeding, Atlantic puffin breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 52.53 km from the Proposed Development, only the black-legged kittiwake and Atlantic puffin features have potential connectivity based upon mean foraging range ¹⁰ . The significance of effects at a population level is considered to decrease with distance and the severity of the effect experienced locally within the SPA. For these impact pathways, the likelihood and severity of the effect experienced locally is considered to be low and negligible. It is determined that significant effects would not therefore manifest on this SPA after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context either alone, or in combination. Therefore LSE is not predicted either alone or in-combination.	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Screened Out
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)		Screened Out
					Direct displacement from the footprint of the Proposed Development		
					Loss of, or damage to prey-supporting habitats		
				Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area		Screened Out
Cape Wrath	Northern fulmar (<i>Fulmarus glacialis</i>) breeding, common guillemot breeding, black-legged kittiwake breeding, Atlantic puffin breeding, razorbill (<i>Alca torda</i>) breeding, seabird assemblage breeding	175.80	Northern fulmar breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 175.80 km from the Proposed Development, only the northern fulmar feature has potential connectivity based upon mean foraging range ¹⁰ . Northern fulmar are an oceanic species and their preferred marine habitat in Scotland is the continental shelf-break to the north and west. Therefore, in the context of the extensive foraging range of the northern fulmar, their preference for shelf-break areas within oceanic environments ¹⁴ , the location of the Proposed Development within inshore waters, and the limited spatial extent of the Proposed Development, it is determined that the Proposed Development will not result in LSE, either alone or in-combination.	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Screened Out
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)		Screened Out
					Direct displacement from the footprint of the Proposed Development		
					Loss of, or damage to prey-supporting habitats		
				Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area		Screened Out

¹⁴ Furness, R.W., Wade, H.M., Robbins, A.M. and Masden, E.A., 2012. Assessing the sensitivity of seabird populations to adverse effects from tidal stream turbines and wave energy devices. ICES Journal of Marine Science, 69(8), pp.1466-1479. [Online] Available at: <https://academic.oup.com/icesjms/article/69/8/1466/704765>

SPA Name	Qualifying Features	Straight-line Distance from Proposed Development (km)	Qualifying Features with Potential Connectivity	Development Phase	Potential Impact Pathway	Potential for LSE	Screening Outcome
East Caithness Cliffs	Great cormorant (<i>Phalacrocorax carbo</i>) breeding, northern fulmar breeding, great black-backed gull (<i>Larus marinus</i>) breeding, common guillemot breeding, herring gull breeding, black-legged kittiwake breeding, peregrine (<i>Falco peregrinus</i>) breeding, razorbill breeding, seabird assemblage breeding, European shag breeding	223.15 (332.11)	Northern fulmar breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	Whilst the East Caithness Cliffs SPA was initially screened in based upon the mean foraging range of the northern fulmar ¹⁰ (224.70 km), the straight-line distance crossed significant portions of land. As such, the at-sea flight distance was calculated to determine the potential for connectivity. The at-sea flight distance exceeded the mean foraging range of the northern fulmar, therefore it was determined that the East Caithness Cliffs SPA does not have connectivity with the Proposed Development.	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Screened Out
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)		
					Direct displacement from the footprint of the Proposed Development		
					Loss of, or damage to prey-supporting habitats		
				Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area		Screened Out
Flannan Isles	Northern fulmar breeding, common guillemot breeding, black-legged kittiwake breeding, Leach's petrel (<i>Hydrobates leucorhous</i>) breeding, Atlantic puffin breeding, razorbill breeding, and seabird assemblage breeding	90.77	Northern fulmar breeding, black-legged kittiwake breeding, Leach's petrel breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 90.77 km from the Proposed Development, only the northern fulmar, black-legged kittiwake, and Leach's petrel features have potential connectivity based upon mean foraging range ¹⁰ . The significance of effects at a population level is considered to decrease with distance and the severity of the effect experienced locally within the SPA. For these impact pathways, the likelihood and severity of the effect experienced locally is considered to be low and negligible. It is determined that significant effects would not therefore manifest on this SPA after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context either alone, or in combination. Therefore LSE is not predicted either alone or in-combination.	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Screened Out
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)		
					Direct displacement from the footprint of the Proposed Development		
					Loss of, or damage to prey-supporting habitats		
				Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area		Screened Out
Foula	Arctic skua (<i>Stercorarius parasiticus</i>) breeding, Arctic tern breeding, northern fulmar breeding, great skua (<i>Stercorarius skua</i>) breeding, common guillemot breeding, black-legged kittiwake breeding, Leach's petrel breeding, Atlantic puffin breeding, razorbill breeding,	412.34	Leach's petrel breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 412.34 km (at-sea distance) from the Proposed Development, only the Leach's petrel feature has potential connectivity based upon mean foraging range ¹⁰ . However, in the context of the extensive mean foraging range of the Leach's petrel, their oceanic preference, with foraging typically occurring in association with the shelf-break areas ¹⁴ , the location of the Proposed Development within an inshore environment, and the limited spatial extent of the Proposed Development, it is determined that the Proposed Development would not result in	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Screened Out
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)		
					Direct displacement from the footprint of the Proposed Development		
					Loss of, or damage to prey-supporting habitats		

SPA Name	Qualifying Features	Straight-line Distance from Proposed Development (km)	Qualifying Features with Potential Connectivity	Development Phase	Potential Impact Pathway	Potential for LSE	Screening Outcome
	red-throated diver (<i>Gavia stellata</i>) breeding, seabird assemblage breeding, and European shag breeding			Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area	LSE, either alone or in-combination.	Screened Out
Handa	Northern fulmar breeding, great skua breeding, common guillemot breeding, black-legged kittiwake breeding, razorbill breeding, and seabird assemblage breeding	151.45	Northern fulmar breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 151.45 km from the Proposed Development, only the northern fulmar feature has potential connectivity based upon mean foraging range ¹⁰ .	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Screened Out
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)	Northern fulmar are an oceanic species and their preferred marine habitat in Scotland is the continental shelf-break to the north and west. Therefore, in the context of the extensive foraging range of the northern fulmar, their preference for shelf-break areas within oceanic environments ¹⁴ , the location of the Proposed Development within inshore waters, and the limited spatial extent of the Proposed Development, it is determined that the Proposed Development will not result in LSE.	Screened Out
					Direct displacement from the footprint of the Proposed Development		
					Loss of, or damage to prey-supporting habitats		
				Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area		Screened Out
Mingulay and Berneray	Northern fulmar breeding, common guillemot breeding, black-legged kittiwake breeding, Atlantic puffin breeding, razorbill breeding, seabird assemblage breeding, and European shag breeding	71.34	Northern fulmar breeding, black-legged kittiwake breeding, Atlantic puffin breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 71.34 km from the Proposed Development, only the northern fulmar, black-legged kittiwake, and Atlantic puffin features have potential connectivity based upon mean foraging range ¹⁰ .	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Screened Out
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)	The significance of effects at a population level is considered to decrease with distance and the severity of the effect experienced locally within the SPA. For these impact pathways, the likelihood and severity of the effect experienced locally is considered to be low and negligible. It is determined that significant effects would not therefore manifest on this SPA after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context either alone, or in combination.	Screened Out
					Direct displacement from the footprint of the Proposed Development		
					Loss of, or damage to prey-supporting habitats		
				Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area	Therefore LSE is not predicted either alone or in-combination.	Screened Out
Mointeach Scadabhaigh	Black-throated diver (<i>Gavia arctica</i>) breeding, red-throated diver breeding	11.73	Red-throated diver breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 11.73 km from the Proposed Development the red-throated diver feature has potential connectivity based upon mean foraging range ¹⁵ .	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Screened Out
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)	When red-throated diver are within the terrestrial habitat of the SPA no connectivity with the Proposed Development is anticipated, to the distance between the Proposed Development and the SPA and the entirely marine nature of the Proposed Development.	Screened Out
					Direct displacement from the footprint of the Proposed Development		

SPA Name	Qualifying Features	Straight-line Distance from Proposed Development (km)	Qualifying Features with Potential Connectivity	Development Phase	Potential Impact Pathway	Potential for LSE	Screening Outcome
					Loss of, or damage to prey-supporting habitats	However, over 80 % of the red-throated diver population at this SPA are estimated to forage within the marine waters of the West Coast of the Outer Hebrides SPA. Within this SPA red-throated diver are thought to make use of limited areas, primarily Loch a Siar and the northwest coast of North Uist. Due to the distance between the Proposed Development and the SPA connectivity is inherently reduced as the significance of effects at a population level is considered to decrease with distance and the severity of the effect experienced locally within the SPA. For these impact pathways, the likelihood and severity of the effect experienced locally is considered to be low and negligible. It is determined that significant effects would therefore not manifest on this SPA after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context either alone, or in combination.	
				Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area		Screened Out
North Rona and Sula Sgeir	Northern fulmar breeding, northern gannet breeding, great black-backed gull breeding, common guillemot breeding, black-legged kittiwake breeding, Leach's petrel breeding, Atlantic puffin breeding, razorbill breeding, seabird assemblage breeding, and storm petrel breeding	187.91	Northern fulmar breeding, Leach's petrel breeding, storm petrel breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 187.91 km from the Proposed Development, only the northern fulmar, Leach's petrel, and storm petrel features have potential connectivity based upon mean foraging range ¹⁰ . The significance of effects at a population level is considered to decrease with distance and the severity of the effect experienced locally within the SPA. For these impact pathways, the likelihood and severity of the effect experienced locally is considered to be low and negligible. It is determined that significant effects would not therefore manifest on this SPA after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context either alone, or in combination. Therefore LSE is not predicted either alone or in-combination.	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Screened Out
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)		
					Direct displacement from the footprint of the Proposed Development		
					Loss of, or damage to prey-supporting habitats		
				Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area		Screened Out
North Uist Machair and Islands	Corncrake (<i>Crex crex</i>) breeding, dunlin (<i>Calidris alpina schinzii</i>) breeding, Greenland barnacle goose (<i>Branta leucopsis</i>) non-breeding, oystercatcher (<i>Haematopus ostralegus</i>)	11.14	Greenland barnacle goose breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 11.14 km from the Proposed Development, only the Greenland barnacle goose feature has potential connectivity based upon mean foraging range ¹⁵ . Whilst Greenland barnacle geese have a core foraging range of 15 km, they typically make use of habitats such as natural and semi-natural grassland, agricultural grasslands and arable stubbles,	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Screened Out
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)		

¹⁵ NatureScot. Assessing connectivity with Special Protection Areas. [Online] Available at: <https://www.nature.scot/doc/assessing-connectivity-special-protection-areas>

SPA Name	Qualifying Features	Straight-line Distance from Proposed Development (km)	Qualifying Features with Potential Connectivity	Development Phase	Potential Impact Pathway	Potential for LSE	Screening Outcome
	breeding, purple sandpiper (<i>Calidris maritima</i>) non-breeding, redshank (<i>Tringa totanus</i>) breeding, ringed plover (<i>Charadrius hiaticula</i>) breeding and non-breeding, turnstone (<i>Arenaria interpres</i>) non-breeding				Direct displacement from the footprint of the Proposed Development Loss of, or damage to prey-supporting habitats	saltmarshes, mudflats, and dune grasslands. In contrast, the Proposed Development is located within a high energy marine environment.	
				Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area	Therefore LSE is not predicted either alone or in-combination.	Screened Out
Priest Island (Summer Isles)	Storm petrel breeding		Storm petrel breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 112.90 km (at-sea distance) from the Proposed Development the storm petrel feature has potential connectivity based upon mean foraging range ¹⁰ .	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR) Direct displacement from the footprint of the Proposed Development Loss of, or damage to prey-supporting habitats	However, in the context of the extensive mean foraging range of the storm petrel, the fact that storm petrels are pelagic in their habits and are generally found over the continental shelf ¹⁴ , the location of the Proposed Development within inshore waters, and the limited spatial extent of the Proposed Development, it is determined that the Proposed Development will not result in LSE, either alone or in-combination.	Screened Out
		112.90		Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area		Screened Out
Ramna Stacks and Gruney	Leach's petrel breeding		Leach's petrel breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 489.312 km (at-sea distance) from the Proposed Development, the Leach's petrel feature has potential connectivity based upon mean foraging range ¹⁰ .	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR) Direct displacement from the footprint of the Proposed Development Loss of, or damage to prey-supporting habitats	However, in the context of the extensive mean foraging range of the Leach's petrel, the fact Leach's petrel are considered to be oceanic in habit, and typically forage in association with the continental shelf-break areas further offshore ¹⁴ , the location of the Proposed Development within inshore waters, and the limited spatial extent of the Proposed Development, it is determined that the Proposed Development will not result in LSE, either alone or in-combination.	Screened Out
		489.12		Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area		Screened Out
Rum	Golden eagle (<i>Aquila chrysaetos</i>) breeding, common guillemot breeding, black-legged kittiwake breeding, manx shearwater (<i>Puffinus puffinus</i>) breeding, red-throated diver breeding, and seabird assemblage breeding		Black-legged kittiwake breeding, Manx shearwater breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 55.43 km from the Proposed Development, only the black-legged kittiwake and Manx shearwater features have potential connectivity based upon mean foraging range ¹⁰ .	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR) Direct displacement from the footprint of the Proposed Development Loss of, or damage to prey-supporting habitats	The significance of effects at a population level is considered to decrease with distance and the severity of the effect experienced locally within the SPA. For these impact pathways, the likelihood and severity of the effect experienced locally is considered to be low and negligible. It is determined that significant effects would	Screened Out
		55.43					

SPA Name	Qualifying Features	Straight-line Distance from Proposed Development (km)	Qualifying Features with Potential Connectivity	Development Phase	Potential Impact Pathway	Potential for LSE	Screening Outcome
				Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area	therefore not manifest on this SPA after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context either alone, or in combination. Therefore LSE is not predicted either alone or in-combination.	Screened Out
Seas off St Kilda	Northern fulmar breeding, northern gannet breeding, common guillemot breeding, Atlantic puffin breeding, seabird assemblage breeding, storm petrel breeding	64.88	Northern fulmar breeding, northern gannet breeding, Atlantic puffin breeding, storm petrel breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 64.88 km from the Proposed Development, the northern fulmar, northern gannet, Atlantic puffin, and storm petrel features have potential connectivity based upon mean foraging range ¹⁰ . The significance of effects at a population level is considered to decrease with distance and the severity of the effect experienced locally within the SPA. For these impact pathways, the likelihood and severity of the effect experienced locally is considered to be low and negligible. It is determined that significant effects would therefore not manifest on this SPA after the likelihood and severity of effects on the designated populations, with the exception of northern gannet and the entanglement and entrapment impact pathway, have been diluted over distance and could only result in negligible effects in the wider environmental context either alone, or in combination. However, northern gannet are potentially at risk of entanglement and entrapment in relation to pole mounted top netting deployed at fish farms ⁷ , primarily as a result of their plunge diving foraging strategy. The Proposed Development will be fitted with a pole mounted top net system and is located within the mean foraging range of northern gannet from this SPA. Therefore, there is the potential for LSE, alone and in-combination. Further assessment is required, and this should be advanced to AA.	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Screened In
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)		Screened Out
					Direct displacement from the footprint of the Proposed Development		Screened Out
					Loss of, or damage to prey-supporting habitats		Screened Out
				Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area		Screened Out
Shiant Isles	Northern fulmar breeding, Greenland barnacle goose non-breeding, common guillemot breeding, black-legged kittiwake breeding, Atlantic puffin breeding, razorbill breeding, seabird assemblage breeding, and European shag breeding	62.11	Northern fulmar breeding, black-legged kittiwake breeding, Atlantic puffin breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 62.11 km from the Proposed Development, the northern fulmar, black-legged kittiwake, and Atlantic puffin features have potential connectivity based upon mean foraging range ¹⁰ . The significance of effects at a population level is considered to decrease with distance and the severity of the effect experienced locally within the SPA. For these impact pathways, the likelihood and severity of the effect experienced locally is considered to be low and negligible. It is determined that significant effects would	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Screened Out
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)		
					Direct displacement from the footprint of the Proposed Development		
					Loss of, or damage to prey-supporting habitats		

SPA Name	Qualifying Features	Straight-line Distance from Proposed Development (km)	Qualifying Features with Potential Connectivity	Development Phase	Potential Impact Pathway	Potential for LSE	Screening Outcome
				Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area	therefore not manifest on this SPA after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context either alone, or in combination. Therefore LSE is not predicted either alone or in-combination.	Screened Out
St Kilda	Northern fulmar breeding, northern gannet breeding, great skua breeding, common guillemot breeding, black-legged kittiwake breeding, Leach's petrel breeding, Manx shearwater breeding, Atlantic puffin breeding, razorbill breeding, seabird assemblage breeding, storm petrel breeding	81.67	Northern fulmar breeding, northern gannet breeding, great skua breeding, black-legged kittiwake breeding, Leach's petrel breeding, Manx shearwater breeding, storm petrel breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 81.67 km from the Proposed Development, the northern fulmar, northern gannet, great skua, black-legged kittiwake, Leach's petrel, Manx shearwater, and storm petrel features have potential connectivity based upon mean foraging range ¹⁰ . The significance of effects at a population level is considered to decrease with distance and the severity of the effect experienced locally within the SPA. For these impact pathways, the likelihood and severity of the effect experienced locally is considered to be low and negligible. It is determined that significant effects would therefore not manifest on this SPA after the likelihood and severity of effects on the designated populations, with the exception of northern gannet and the entanglement and entrapment impact pathway, have been diluted over distance and could only result in negligible effects in the wider environmental context either alone, or in combination. However, northern gannet are potentially at risk of entanglement and entrapment in relation to pole mounted top netting deployed at fish farms ⁷ , primarily as a result of their plunge diving foraging strategy. The Proposed Development will be fitted with a pole mounted top net system and is located within the mean foraging range of northern gannet from this SPA. Therefore, there is the potential for LSE, alone and in-combination. Further assessment is required, and this should be advanced to AA.	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Screened In
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)		Screened Out
					Direct displacement from the footprint of the Proposed Development		Screened Out
					Loss of, or damage to prey-supporting habitats		Screened Out
				Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area		Screened Out
Sule Skerry and Sule Stack	Northern gannet breeding, common guillemot breeding, Leach's petrel breeding, Atlantic puffin breeding, seabird assemblage breeding, European shag breeding, and storm petrel breeding	231.27	Leach's petrel breeding, storm petrel breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 231.27 km (at-sea distance) from the Proposed Development, only the Leach's petrel and storm petrel features have potential connectivity based upon mean foraging range ¹⁰ . Leach's petrel are considered to be oceanic in habit, and typically forage in association with the continental shelf-break areas further offshore ¹⁴ . Whereas storm petrel are considered to be pelagic in their habits and typically forage over the continental shelf ¹⁴ .	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Screened Out
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)		
					Direct displacement from the footprint of the Proposed Development		

SPA Name	Qualifying Features	Straight-line Distance from Proposed Development (km)	Qualifying Features with Potential Connectivity	Development Phase	Potential Impact Pathway	Potential for LSE	Screening Outcome
					Loss of, or damage to prey-supporting habitats	As such, in the context of the extensive mean foraging ranges of the features, their pelagic and oceanic preference, the location of the Proposed Development with inshore waters, and the limited spatial extent of the Proposed Development, it is determined that the Proposed Development will not result in LSE.	
				Decommissioning	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area		Screened Out
Treshnish Isles	Greenland barnacle goose non-breeding, and storm petrel breeding	114.19	Storm petrel breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 114.19 km (at-sea distance) from the Proposed Development the storm petrel feature has potential connectivity based upon mean foraging range ¹⁰ .	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		However, in the context of the extensive mean foraging range of the storm petrel, the fact that storm petrels are pelagic in their habits and are generally found over the continental shelf ¹⁴ , the location of the Proposed Development within inshore waters, and the limited spatial extent of the Proposed Development, it is determined that the Proposed Development will not result in LSE, either alone or in-combination.
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)		
					Direct displacement from the footprint of the Proposed Development		
				Decommissioning	Loss of, or damage to prey-supporting habitats	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area	Screened Out
West Coast of the Outer Hebrides	Black-throated diver non-breeding, common eider (<i>Somateria mollissima</i>) non-breeding, great northern diver (<i>Gavia immer</i>) non-breeding, long-tailed duck (<i>Clangula hyemalis</i>) non-breeding, red-breasted merganser (<i>Mergus serrator</i>) non-breeding, red-throated diver breeding, Slavonian grebe (<i>Podiceps auritus</i>) non-breeding	11.08	Red-throated diver breeding	Construction	Disturbance, as a result of installation activities, in the vicinity of the Development Area	At a distance of 11.08 km (at-sea distance) from the Proposed Development the red-throated diver feature has potential connectivity based upon mean foraging range ¹⁵ .	Screened Out
				Operation	Entanglement or entrapment in top, pen, or anti-predator netting		Red-throated diver, within the SPA, are thought to make use of limited areas, primarily Loch a Siar and the northwest coast of North Uist. Due to the distance between the Proposed Development and the SPA connectivity is inherently reduced as the significance of effects at a population level is considered to decrease with distance and the severity of the effect experienced locally within the SPA. For these impact pathways, the likelihood and severity of the effect experienced locally is considered to be low and negligible. It is determined that significant effects would therefore not manifest on this SPA after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context either alone, or in combination.
					Disturbance in the vicinity of the Proposed Development and Vessel Transit Route (VTR)		
					Direct displacement from the footprint of the Proposed Development		
				Decommissioning	Loss of, or damage to prey-supporting habitats	Disturbance, as a result of decommissioning activities, in the vicinity of the Development Area	Screened Out
						Therefore LSE is not predicted either alone or in-combination.	

3.1.3 Special Areas of Conservation (SACs)

An initial screening assessment was carried out between the Proposed Development and SACs. The parameters of this screening assessment focused on the ZOI and defined search area, stated in **Table 3.1**.

Once SACs within the search area were identified, the second stage of the assessment screened each SAC and qualifying feature for an impact pathway. The identification of an impact pathway between the Proposed Development and a SAC, where the SAC falls within the search area of the Proposed Development, resulted in the determination of connectivity. For SACs that met this threshold for connectivity, a further screening stage was conducted to determine if LSE was anticipated in relation to each of the impact pathways identified.

The results of the SAC screening process are shown in **Table 3.3**. A total of five SACs were initially identified.

Table 3.3: Impact pathway screening assessment for SACs.

SAC Name	Qualifying Features	Distance from Proposed Development (km)	Qualifying Features with Potential Connectivity	Development Phase	Potential Impact Pathway	Potential for LSE	Screening Outcome
Ascrib, Isay and Dunvegan	Common seal (<i>Phoca vitulina</i>)	30.19	Common seal	Construction	Marine vessel activity, with the potential to cause disturbance, injury or mortality.	At a distance of 30.19 km from the Proposed Development the common seal feature has potential connectivity based upon their 50 km foraging range. Data suggest that common seal from this SAC predominantly forage within the Minch and around the northwest coast of the Isle of Skye between Loch Bracadale and Waternish Point ¹⁶ . Furthermore, the significance of effects at a population level is considered to decrease with distance and the severity of the effect experienced locally within the SAC. For these impact pathways, the likelihood and severity of the effect experienced locally is considered to be low and negligible. It is determined that significant effects would not therefore manifest on this SPA after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context either alone, or in combination. This is particularly so when taking into account the embedded mitigation presented in Section 2 . Therefore LSE is not predicted either alone or in-combination.	Screened Out
					Underwater noise, with the potential to cause disturbance and exclusion.		
				Operation	Marine vessel activity, with the potential to cause disturbance, injury or mortality.		Screened Out
					Underwater noise, with the potential to cause disturbance and exclusion.		
					Entanglement in fish farm infrastructure, with the potential to cause injury or mortality.		
					Loss of, or damage to, prey supporting habitats.		
				Decommissioning	Marine vessel activity, with the potential to cause disturbance, injury or mortality.		Screened Out
					Underwater noise, with the potential to cause disturbance and exclusion.		

¹⁶ NatureScot. Conservation and Management Advice. Ascrib, Isay and Dunvegan SAC. March 2024. [Online] Available at: <https://sitelink.nature.scot/site/8193>

SAC Name	Qualifying Features	Distance from Proposed Development (km)	Qualifying Features with Potential Connectivity	Development Phase	Potential Pathway	Impact	Potential for LSE	Screening Outcome
Inner Hebrides and the Minches	Harbour porpoise (<i>Phocoena phocoena</i>)	0.17	Harbour porpoise	Construction	Marine vessel activity, with the potential to cause disturbance, injury or mortality.		<p>The worst-case installation time for the Proposed Development is approximately 23 days. As such, this impact pathway is considered to be short-term and temporary in nature. During installation all project vessel activity will be associated with the Development Area, which has a negligible spatial extent. Project vessels will be moving at slow speeds or will be stationary when onsite.</p> <p>Installation activities, including the installation of the mooring system and the anchors, will make use of soft installation techniques. The anchors will be placed on the seabed and then set by tensioning the mooring lines. Due to the nature of the installation activities it is not anticipated that significant underwater noise will be generated and propagated from the Proposed Development.</p> <p>As such, it is determined that this impact pathway is unlikely to result in anything other than insignificant effects.</p>	Screened Out
					Underwater noise, with the potential to cause disturbance and exclusion.			
				Operation	Marine vessel activity, with the potential to cause disturbance, injury or mortality.		<p>Harbour porpoise are reportedly at risk of collision with marine vessels¹⁷.</p> <p>However, there is little evidence available in the literature to suggest a high frequency of collision between marine vessels and harbour porpoise within UK waters¹⁸.</p> <p>Evidence is only available to support incidental levels of collision, with the UK Cetacean Strandings and Investigation Programme (CSIP) only identifying 0.48 % of harbour porpoise (5/1,041 necropsies) with injuries consistent with fatal collision with marine vessels between 2000 and 2010.</p> <p>Furthermore, data indicate that the location of the Proposed Development is of limited importance to harbour porpoise within the SAC and the West Scotland MU. As data indicate that the location supports top 50 to 15 % of harbour porpoise density. Whereas other locations within the SAC, in particular, the waters off the northeast coast of North Uist, the Sound of Raasay, the Small Isles, the Firth of Lorn, and the Sound of Jura¹⁹.</p> <p>The 3.86 km indicative VTR has a baseline annual average vessel density²⁰ of 35.50 hours per km², with a maximum value of 147.67 average hours per km² associated with Kallin harbour.</p> <p>Anticipated daily marine vessel activity associated with the Proposed Development, is likely to add an additional 14 (return trips) weekly vessel movements (one return journey for each of the two vessels over seven days), which would increase vessel density within the local area. However, the relatively short</p>	Screened Out

¹⁷ NatureScot. Conservation and Management Advice. Inner Hebrides and the Minches SAC. 2020. [Online] Available at: <https://sitelink.nature.scot/site/10508>

¹⁸ IAMMWG, Camphuysen, C.J. & Siemensma, M.L. 2015. A Conservation Literature Review for the Harbour Porpoise (*Phocoena phocoena*). JNCC Report No. 566, Peterborough. 96pp. [Online] Available at: <https://data.jncc.gov.uk/data/e3c85307-1294-4e2c-9864-f4dd0f195e1e/JNCC-Report-566-FINAL-WEB.pdf>

¹⁹ NMPi. Areas of predicted high density of harbour porpoise (acoustic) (2003 - 2010). [Online] Available at: <https://marine.gov.scot/maps/1106>

²⁰ EMODnet Human Activities, Vessel Density Map (AIS Data from CLS). [Online] Available at: <https://emodnet.ec.europa.eu/geonetwork/srv/eng/catalog.search#/metadata/0f2f3ff1-30ef-49e1-96e7-8ca78d58a07c>

SAC Name	Qualifying Features	Distance from Proposed Development (km)	Qualifying Features with Potential Connectivity	Development Phase	Potential Pathway	Impact	Potential for LSE	Screening Outcome
							<p>transit times (approximately six minutes for the polarcirkel and 15 minutes for the workboat) will limit the temporal extent of marine vessel activity, and the associated impact pathways. As a result it is not anticipated that vessel activity will contribute significantly to disturbance or the risk of collision.</p> <p>The embedded design and operational mitigation, outlined in Section 2, including the implementation of the dVMP will reduce the potential impact through application of best practice marine vessel protocols, including specific cetacean protocols to avoid and reduce the potential impact.</p> <p>As a result, LSE is not predicted in relation to the harbour porpoise qualifying feature of the Inner Hebrides and the Minches SAC.</p>	
					Underwater noise, with the potential to cause disturbance and exclusion.		<p>ADDs are identified as the primary impact pathway for underwater noise to impact harbour porpoise¹⁷. However, ADDs will not be deployed at the Proposed Development. Passive predator control measures will be utilised, as detailed within Section 2.</p> <p>There is emerging evidence suggesting that harbour porpoise are sensitive to the high frequency component of engine noise, with disturbance responses detected up to 1 km from the source²¹.</p> <p>Marine vessel activity associated with the Proposed Development will result in an additional 14 (return trips) weekly transits across the VTR, which has an annual average baseline vessel density²⁰ of 35.50 hours per km². However, the relatively short transit times (approximately six minutes for the polarcirkel and 15 minutes for the workboat) will limit the temporal extent of any noise generated from transiting vessels and, as a result, it is not anticipated that vessel activity will contribute significantly to underwater noise.</p> <p>Furthermore, data indicate that the location of the Proposed Development is of limited importance to harbour porpoise within the SAC and the West Scotland MU. The data indicate that the development location supports lower densities of harbour porpoise in comparison to other locations, of higher density (top 5 to 10 % densities) within the SAC, such as, the waters off the northeast coast of North Uist, the Sound of Raasay, the Small Isles, the Firth of Lorn, and the Sound of Jura¹⁹.</p> <p>Additionally, the dVMP (Section 2) details the best practice principles to minimise disturbance (SMWWC and 'A Guide to Best Practice for Watching Marine Wildlife') including appropriate minimum approach distances and speed limits. These measures are considered to sufficiently reduce levels of direct engine / propeller noise exposure.</p> <p>As a result, LSE is not predicted in relation to the harbour porpoise qualifying feature of the Inner Hebrides and the Minches SAC.</p>	Screened Out

²¹ Dyndo, M., Wiśniewska, D.M., Rojano-Doñate, L. and Madsen, P.T., 2015. Harbour porpoises react to low levels of high frequency vessel noise. Scientific reports, 5(1), pp.1-9. [Online] Available at: <https://www.nature.com/articles/srep11083>

SAC Name	Qualifying Features	Distance from Proposed Development (km)	Qualifying Features with Potential Connectivity	Development Phase	Potential Pathway	Impact	Potential for LSE	Screening Outcome
					Entanglement in fish farm infrastructure, with the potential to cause injury or mortality.		<p>Harbour porpoise are considered to be sensitive to entanglement¹⁷.</p> <p>However, as embedded mitigation (detailed in Section 2) the Proposed Development will deploy high rigidity primary netting with a standard mesh size of 18 mm. This netting will also be appropriately tensioned via a sinker tube system to ensure well distributed tension across the surface of the netting. This will help to ensure that the netting maintains its volume and structure within the water column, which will limit the potential for entanglement.</p> <p>Furthermore, data indicate that the location of the Proposed Development is of limited importance to harbour porpoise within the SAC and the West Scotland MU. As data indicate that the development location supports lower densities of harbour porpoise in comparison to other locations, of higher density (top 5 to 10 % densities), within the SAC, such as, the waters off the northeast coast of North Uist, the Sound of Raasay, the Small Isles, the Firth of Lorn, and the Sound of Jura¹⁹.</p> <p>Additionally, the potential for harbour porpoise entanglement is predominately associated with entanglement in gillnets and entangling nets with large mesh sizes (220 mm or greater)²². As detailed in Section 2, the Proposed Development will not deploy anti-predator netting which typically makes use of larger mesh netting. As such, netting with the characteristics associated with harbour porpoise entanglement will not be deployed at the Proposed Development.</p> <p>As a result, LSE is not predicted in relation to the harbour porpoise qualifying feature of the Inner Hebrides and the Minches SAC.</p>	Screened Out
					Loss of, or damage to, prey supporting habitats.		<p>Harbour porpoise are considered sensitive to habitat and prey species loss¹⁷. However, harbour porpoise are considered to be highly mobile and as such they are capable of foraging over large areas. Therefore, this impact pathway is determined to be weak for this highly mobile receptor. Harbour porpoise feed of a variety of prey species with sandeel, whiting, herring, and sprat being of particular importance.</p> <p>NDM modelling indicates that the Proposed Development will comply with the SEPA benthic quality standards. Therefore, the operation of the Proposed Development is not anticipated to result in degradation of extensive areas of benthic habitat.</p> <p>As a result, LSE is not predicted in relation to the harbour porpoise qualifying feature of the Inner Hebrides and the Minches SAC.</p>	Screened Out

²² Calderan, S. and Leaper, R., 2019. Review of harbour porpoise Bycatch in UK Waters and Recommendations for Management. Nairobi: United Nations Environment Programme. [Online] Available at: https://www.wwf.org.uk/sites/default/files/2019-04/Review_of_harbour_porpoise_in_UK_waters_2019.pdf

SAC Name	Qualifying Features	Distance from Proposed Development (km)	Qualifying Features with Potential Connectivity	Development Phase	Potential Impact Pathway	Potential for LSE	Screening Outcome
				Decommissioning	Marine vessel activity, with the potential to cause disturbance, injury or mortality.	The impacts for the decommissioning phase will be similar to the impacts for the construction phase. As such, it is determined that impacts associated with the decommissioning of the Proposed Development will be considered by proxy through review, and detailed assessment, if needed, of the impact pathways associated with the construction phase.	Screened Out
					Underwater noise, with the potential to cause disturbance and exclusion.		
Monach Islands	Dune grassland, grey seal (<i>Halichoerus grypus</i>), machair, shifting dunes with marram	23.69	Grey seal	Construction	Marine vessel activity, with the potential to cause disturbance, injury or mortality.	At a distance of 23.69 km from the Proposed Development, the grey seal feature has potential connectivity based upon their 100 km foraging range. However, the Monach Islands SAC is located off the west coast of North Uist and grey seals from this SAC are thought to predominantly forage around St. Kilda and the Flannan Isles ²³ .	Screened Out
					Underwater noise, with the potential to cause disturbance and exclusion.		
				Operation	Marine vessel activity, with the potential to cause disturbance, injury or mortality.	Furthermore, the significance of effects at a population level is considered to decrease with distance and the severity of the effect experienced locally within the SAC. For these impact pathways, the likelihood and severity of the effect experienced locally is considered to be low and negligible. It is determined that significant effects would not therefore manifest on this SPA after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context either alone, or in combination. Particularly when taking into account the embedded mitigation presented in Section 2 . Therefore LSE is not predicted either alone or in-combination.	Screened Out
					Underwater noise, with the potential to cause disturbance and exclusion.		
					Entanglement in fish farm infrastructure, with the potential to cause injury or mortality.		
					Loss of, or damage to, prey supporting habitats.		
				Decommissioning	Marine vessel activity, with the potential to cause disturbance, injury or mortality.		Screened Out
					Underwater noise, with the potential to cause		

²³ Harris, R.N., 2007. Assessing grey seal (*Halichoerus grypus*) diet in western Scotland (Doctoral dissertation, University of St Andrews). [Online] Available at: <https://research-repository.st-andrews.ac.uk/handle/10023/432>

SAC Name	Qualifying Features	Distance from Proposed Development (km)	Qualifying Features with Potential Connectivity	Development Phase	Potential Pathway Impact	Potential for LSE	Screening Outcome
					disturbance and exclusion.		
Skerries and Causeway	Reefs, sandbanks which are slightly covered by sea water, submerged and partially submerged sea caves, harbour porpoise	244.10	Harbour porpoise	Construction	Marine vessel activity, with the potential to cause disturbance, injury or mortality.	At a distance of 244.10 km from the Proposed Development, the harbour porpoise feature has potential connectivity based upon their highly mobile nature, and the location of the SAC with the West Scotland MU. However, the significance of effects at a population level is considered to decrease with distance and the severity of the effect experienced locally within the SAC. For these impact pathways, the likelihood and severity of the effect experienced locally is considered to be low and negligible. It is determined that significant effects would not therefore manifest on this SPA after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context either alone, or in combination. Particularly when taking into account the embedded mitigation presented in Section 2 . Therefore LSE is not predicted either alone or in-combination.	Screened Out
					Underwater noise, with the potential to cause disturbance and exclusion.		
				Operation	Marine vessel activity, with the potential to cause disturbance, injury or mortality.		Screened Out
					Underwater noise, with the potential to cause disturbance and exclusion.		
					Entanglement in fish farm infrastructure, with the potential to cause injury or mortality.		
					Loss of, or damage to, prey supporting habitats.		
				Decommissioning	Marine vessel activity, with the potential to cause disturbance, injury or mortality.		Screened Out
					Underwater noise, with the potential to cause disturbance and exclusion.		
Sound of Barra	Common seal, reefs, subtidal sandbanks	38.60	Common seal	Construction	Marine vessel activity, with the potential to cause disturbance, injury or mortality.	At a distance of 30.19 km from the Proposed Development the common seal feature has potential connectivity based upon their 50 km foraging range. However, common seal from this SAC, for the most part, forage within 20 to 30 km of the SAC ²⁴ , which inherently reduces the potential for connectivity with the Proposed Development. Furthermore, the significance of effects at a population level is considered to decrease with distance and the severity of the effect experienced locally within the SAC. For these impact pathways, the likelihood and severity of the effect experienced locally is considered to be low and negligible. It is determined that significant effects would not therefore manifest on this SPA after the likelihood and severity of effects on	Screened Out
					Underwater noise, with the potential to cause disturbance and exclusion.		
				Operation	Marine vessel activity,		Screened

²⁴ NatureScot. Conservation and Management Advice. Sound of Barra SAC. June 2022. [Online] Available at: <https://sitelink.nature.scot/site/8602>

SAC Name	Qualifying Features	Distance from Proposed Development (km)	Qualifying Features with Potential Connectivity	Development Phase	Potential Pathway	Impact	Potential for LSE	Screening Outcome
					with the potential to cause disturbance, injury or mortality.		the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context either alone, or in combination. Particularly when taking into account the embedded mitigation presented in Section 2 . Therefore LSE is not predicted either alone or in-combination.	Out
					Underwater noise, with the potential to cause disturbance and exclusion.			
					Entanglement in fish farm infrastructure, with the potential to cause injury or mortality.			
					Loss of, or damage to, prey supporting habitats.			
			Decommissioning		Marine vessel activity, with the potential to cause disturbance, injury or mortality.			Screened Out
					Underwater noise, with the potential to cause disturbance and exclusion.			

3.1.4 Ramsar Sites

A review of potential connectivity between the Proposed Development and Ramsar sites has been undertaken. This review was based on mean foraging range data¹⁰ for the qualifying bird features of Ramsar sites.

This review concluded that there are no Ramsar sites with potential connectivity with the Proposed Development. As such, Ramsar sites are excluded from further assessment.

3.1.5 Screening Statement and Conclusions

To determine whether the Proposed Development is likely to have an LSE on any European Site, either individually or in-combination with other plans or projects, a HRA screening assessment was carried out.

The initial HRA screening assessment identified potential connectivity with 25 European Sites (20 SPAs, and five SACs). These European Sites were then subject to enhanced screening, focusing on the capability of the identified impact pathways to cause LSE in relation to the European Site's qualifying features. This enhanced screening stage screened out 23 of the European Sites, leaving two European Sites that require further assessment through AA.

A summary of the European Sites and specific impact pathways triggering LSE is provided in **Table 3.4**.

Table 3.4: HRA screening assessment summary.

European Site Name	Relevant Qualifying Feature	Development Phase	Impact Pathway	Screening Conclusion
St. Kilda SPA	Northern gannet (<i>Morus bassanus</i>)	Operation	Entanglement and entrapment	Screened In
Seas off St. Kilda SPA	Northern gannet (<i>Morus bassanus</i>)	Operation	Entanglement and entrapment	Screened In

3.1.6 Cumulative Assessment

It is proposed that a cumulative assessment will be undertaken for the impact pathways which were determined likely to result in LSE. This cumulative assessment will be undertaken to determine whether the Proposed Development in-combination with existing and planned projects (with the same impact pathways) will cumulatively result in AESI in relation to the screened in European Sites. It is proposed that this cumulative assessment will include the following projects / plans:

- The Proposed Development;
- The existing Maragay Mor fish farm;
- The existing Maaey fish farm; and
- The existing Greanamul fish farm.

4 Conclusion

This Report is intended to provide the information required to inform Stage 3 (Screening) of the HRA process for the Proposed Development. As such, this Report has considered the potential for LSE on European Sites as a result of the construction, operation, and decommissioning of the Proposed Development, both in isolation and in-combination.

An initial screening stage was conducted to assess the potential for LSE based on specific connectivity criteria dependent on the qualifying features of the respective European Sites. This Screening phase initially identified a total 20 SPAs and five SACs with connectivity. These sites were then assessed to determine if LSE was anticipated. This assessment screened out all but two SPAs, leaving the following European Sites with potential for LSE:

- Seas off St. Kilda SPA; and
- St. Kilda SPA.

Due to the determination of LSE in relation to the two above European Sites, it is proposed that both European Sites require AA to determine whether the Proposed Development, alone or in-combination, is likely to result in AESI.