

# BRITISH TELECOMMUNICATIONS PLC

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## Scottish Isles R100 Project

Technical Appendix C: Protected Sites Assessment Report - Inner Hebrides - DRAFT

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## DOCUMENT RELEASE FORM

### British Telecommunications Plc

**P2308\_R5492\_Rev0**

Scottish Isles R100 Project

Technical Appendix C: Protected Sites Assessment Report - Inner Hebrides - DRAFT

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# GLOSSARY

## AA

Appropriate Assessment

## BT

British Telecommunications Plc

## BTO

British Trust for Ornithology

## CHSR

The Conservation (Natural Habitats, &c.) Regulations 1994

## DDV

Drop-down Video

## FEAST

Feature Activity Sensitivity Tool

## GIS

Geographical Information System

## Global Marine

Global Marine Systems Ltd

## HRA

Habitats Regulations Appraisal

## INIS

Invasive Non-indigenous species

## Intertek

Intertek Energy & Water Consultancy Services

## JNCC

Joint Nature Conservation Committee

## KM

Kilometre

## LSE

Likely Significant Effect

## M

Metre

## MarLIN

The Marine Life Information Network

## MARPOL

The International Convention for the Prevention of Pollution from Ships

## MCAA

Marine and Coastal Access Act

## MEA

Marine Environmental Appraisal

## MHWS

Mean High Water Springs

## MS-LOT

Marine Scotland Licensing Operations Team

## MU

Management Unit

## NCMPA

Nature Conservation Marine Protected Area

## NS

NatureScot

## PLGR

Pre-Lay Grapnel Run

## PSA

Protected Sites Assessment

## ROV

Remotely Operated Vehicle

## SAC

Special Area of Conservation

## SNCB

Statutory Nature Conservation Body

## SOPEP

Shipboard Oil Pollution Emergency Plan

## SPA

Special Protection Area

## SSSI

Site of Special Scientific Interest

DRAFT



# 1. INTRODUCTION

This Protected Site Assessment (PSA) report has been prepared for British Telecommunication plc (BT) for the Scottish Isles R100 Project. It supports the Marine Licence applications to Marine Scotland Licensing Operations Team (MS-LOT) for installation of four submarine telecommunication cables in the Inner Hebrides geographical area. Separate Protected Sites Assessment reports have been prepared for the Orkney and Shetland geographical areas.

Global Marine Systems Ltd (hereafter referred to as Global Marine) has been sub-contracted by BT to install the cables. Intertek Energy and Water Consultancy Services (Intertek) has been appointed by Global Marine to provide permitting services for the installation project and has prepared this Protected Sites Assessment Report.

## 1.1 Project Background

BT is proposing to install and operate 16 submarine fibre optic cables to extend superfast broadband (30Mbps+) coverage in three geographical regions: Orkney, Shetlands and the Inner Hebrides. These new cables will form part of the Scottish Government's 'Reaching 100%' (R100) programme, contracted to BT.

BT propose to install four fibre optic cables in the Inner Hebrides geographical area (See Figure 1-1, Drawing P2308-LOC-001-D).

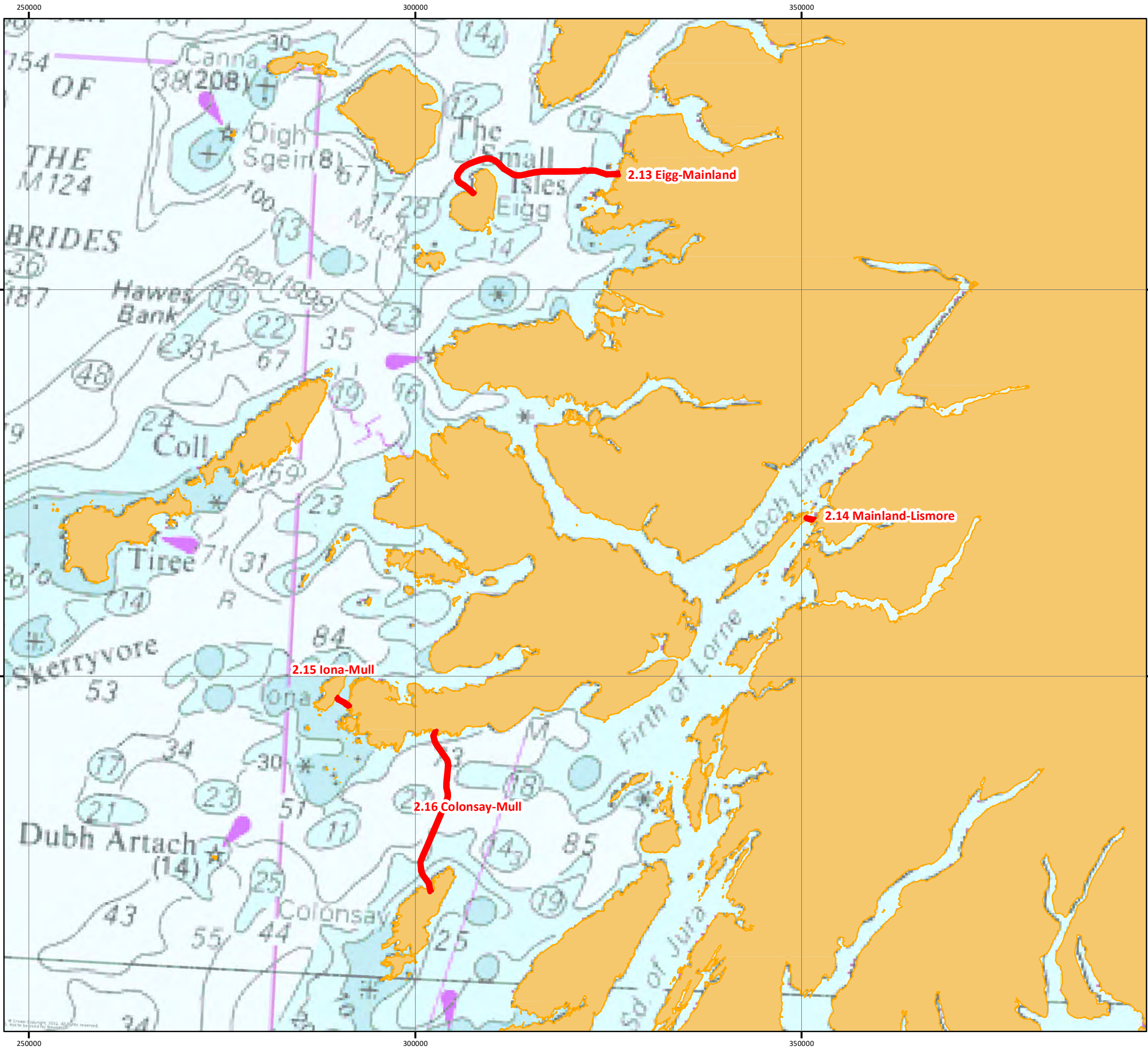
This Protected Sites Assessment Report covers the marine components of four cable corridors in the Inner Hebrides geographical area. Each cable listed below will have a separate marine licence application supported by the Marine Environmental Appraisal (MEA) and supporting documents. Each cable marine licence application will be for an application corridor, hereafter referred to as the cable corridor. The cable corridor covers a width of 500m within which the cable route will be installed. A corridor is applied for so that there is scope for refining the cable route following the identification of any environmental and engineering constraints identified as part of the consenting and route engineering process. The PSA has assumed that the cable route could be positioned anywhere within the cable corridor.

The cable corridors extend from mean-high water springs (MHWS) of the first landfall to MHWS at the second landfall. The Cable Corridors are as follows:

- Cable Corridor 2.13 – Eigg to Mainland
- Cable Corridor 2.14 – Mainland to Lismore
- Cable Corridor 2.15 – Iona to Mull
- Cable Corridor 2.16 – Colonsay to Mull

This is defined as the Project for the Inner Hebrides geographical area and comprises:

- The installation of four separate marine fibre-optic telecommunication cables; and
- All associated works required to install the four cables.



SCOTTISH ISLES  
FIBRE OPTIC CABLE PROJECT

LOCATION OVERVIEW  
Cable Route Application Corridors - Inner Hebrides

Drawing No: P2308-LOC-001\_IH

D

Legend

Cable Route Application Corridor

NOTE: Not to be used for Navigation

Date	18 October 2021
Coordinate System	WGS 1984 UTM Zone 30N
Projection	Transverse Mercator
Datum	WGS 1984
Data Source	ONS; MarineFind; ESRI;
File Reference	J:\P2308\Mxd\01_LOC\ P2308-LOC-001_IH.mxd
Created By	Chris Dawe
Reviewed By	Abigale Nelson
Approved By	Paula Daglish

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## 1.2 Purpose and Scope of Report

When making a marine licensing decision, MS-LOT is required to consider the impacts of the proposed Project alone and in combination with other relevant plans or projects on designated sites. To inform this decision-making process the Applicant is required to provide assessments in accordance with specific legislation and guidance.

- This report has been prepared to present the findings of a protected sites assessment to include the following components:)
- Identification of Relevant Protected Sites (Section 2)
- Habitats Regulations Appraisal (HRA) Stage 1 Screening (Section 3)
- Nature Conservation Marine Protected Area (NCMPA) Assessment (Section 4)
- Sites of Special Scientific Interest (SSSI) Assessment (Section 5)
- HRA Stage 2 Information to Inform Appropriate Assessment (AA) (Section 6)

The assessments determine whether the Project, either alone or in combination with other plans or projects, is likely to have a significant effect on any European sites, hinder the conservation objectives of any NCMPA and/or effect the integrity of any SSSIs. The assessment approach and methodology are provided in Annex 1.

The protected sites included in this report are:

- **European sites** - A collective term for Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites, including any sites which have not been formerly designated such as proposed Special Protection Areas (pSPA).
- **NCMPAs**
- **SSSIs**

This report has been prepared in accordance with the following guidance:

- Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018).
- The Planning Inspectorate Advice note ten: Habitats Regulations Assessment relevant to nationally significant infrastructure projects (The Planning Inspectorate, 2017).
- Habitats Regulations Appraisal of Plans – Guidance for Plan-Making Bodies (Tyldesley, 2015).
- The European Commission Guidance - Article 6 of the Habitats Directive – “Rulings of the European Court of Justice. Final Draft”, September 2014 (EC, 2014).
- EU Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC (EC, 2007).
- Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (EC, 2002).

The assessment approach and methodology are provided in Annex 1.

## 1.3 Consultation

Table 1-1 summarises the relevant consultation undertaken to date for R100, received prior to and during preparation of the Protected Sites Assessment which is considered in this report.



**Table 1-1 Consultation responses**

Stakeholder	Comment
NatureScot	Introductory meeting to the project (22/3/2021). Confirmation from NatureScot that they would recommend submission of an initial screening prior to undertaking any applicable Stage 2 AA and prior to submitting the applications. This is to ensure sites selected are agreed and the appropriate level of data has been used to inform assessments.
NatureScot	<p>17/06/2021 Meeting to discuss methods for PSAs including the selection of relevant protected sites for inclusion in the PSAs; mitigation and designated seal haul out sites. NatureScot thought the approach to selecting relevant sites could be over precautionary and recommended the following:</p> <p><b>Relevant Protected Sites Selection</b></p> <ul style="list-style-type: none"> <li>▪ Cetaceans use Marine Mammal Management Unit (MU).</li> <li>▪ Grey seal 100km search distance.</li> <li>▪ Harbour seals 50km search distance.</li> <li>▪ Birds – focus to be on nearby breeding colony SPAs and marine SPAs the cable corridors are either close by to or go through. Sites within 10km is sufficient without searching further afield.</li> <li>▪ SSSIs at landfalls can use terrestrial guidance, no need to include sites to 10km.</li> </ul> <p><b>Mitigation (timing restrictions, avoidance of peak periods)</b></p> <ul style="list-style-type: none"> <li>▪ Consider operational timings where possible – some species will only be sensitive at certain times.</li> <li>▪ If going through or close to colony or marine SPAs then timing of works important. Appropriate mitigation would be to conduct works prior to the breeding season, because when birds are travelling back and forth with prey items for their chicks they are most sensitive.</li> </ul> <p><b>Seal Haul-out Sites</b></p> <ul style="list-style-type: none"> <li>▪ NatureScot advised Seal haul outs can be included in the MEA.</li> </ul>
NatureScot	<p>13/07/2021 Meeting – follow up on discussion points from the previous meeting. Intertek presented a revised list of relevant protected sites which was sent separately to NatureScot for review. NS confirmed their agreement with this list by email on 04/08/2021.</p> <p>Screening tables were sent to NatureScot to review on 11/08/2021.</p> <p>NS advised that once assessments have been undertaken and the key seasonal sensitivities are understood they are willing to support the Applicant in agreeing appropriate seasonal restrictions (where necessary) that are cognisant of the requirements of the installation programme.</p>
NatureScot	<p>14/09/2021 Meeting – to present key findings of the protected sites assessments and the benthic surveys conducted for four of the cable corridors. Key points discussed:</p> <ul style="list-style-type: none"> <li>▪ NS advised they had reviewed the PSA screening tables and thought the assessments seemed reasonable.</li> <li>▪ NS advised the 900m distance for disturbance to seals hauled out on land Intertek has applied could be over precautionary and 500m could be used.</li> <li>▪ NS advised that nesting birds are most vulnerable at the beginning of the breeding season when they are first settling in their nests. Therefore, installation works close to any nest sites should be programmed for later in the breeding season if the entire breeding season cannot be avoided.</li> </ul>
NatureScot	<p>22/09/2021 Meeting – follow up on discussion points from previous meeting</p> <p>NS provided the following advice:</p> <ul style="list-style-type: none"> <li>▪ The 500m buffer for visual disturbance of seals onshore, can definitely be applied instead of 900m. This 500m buffer for seals is based on common sense, it is not in legislation but is NS's advisory guidance.</li> <li>▪ Where the works may be within the 500m disturbance distance, they should avoid seal pupping period in June/July.</li> </ul>

Stakeholder	Comment
	<ul style="list-style-type: none"> <li>It might be useful to include in the method statement the use of screens/barriers around onshore works to prevent visual disturbance where appropriate.</li> <li>Common eider (moulting) should not be significantly affected if vessels go slowly so they have time to move away. As they can't fly during the moulting period, they would need more time to move away.</li> <li>Red-throated diver (breeding) should not be significantly affected unless the works are close to nest sites.</li> <li>The Scottish marine wildlife watching code provides guidance on appropriate speeds for vessel movements.</li> </ul>
NatureScot	<p>07/10/2021 Meeting to seek advice on 4 landfalls within/adjacent to European Sites in the Shetland geographical area. <i>Advice applicable to Inner Hebrides.</i></p> <ul style="list-style-type: none"> <li>NatureScot confirmed that no timing restrictions would be needed for red-throated diver in a marine SPA (Bluemull and Colgrave Sounds SPA) should all vessels be moving slowly enough.</li> </ul>
NatureScot	<p>01/11/2021 Meeting to discuss Kiloran Bay Cable Route 2.16 (Colonsay landing point)</p> <ul style="list-style-type: none"> <li>&lt;&lt;HOLD&gt;&gt;</li> </ul>
NatureScot	<p>04/11/2021 Follow up meeting on Kiloran Bay</p> <ul style="list-style-type: none"> <li>Discussion on potential impacts to crough, sand dune and machair.</li> <li>It was agreed with NS that the PSA would be submitted in draft format and updated to Final following further consultation with NS/Consultees and agreement on the method statement. The Draft PSA assessment is up to MHWS for 2.16, additional assessment will be conducted between Draft and Final versions.</li> </ul>

## 1.4 Project Assumptions and Footprints

### 1.4.1 Assumptions

To determine the likely significant effect (LSE) of a project activity on Interest Features of protected sites, key information and assumptions from the project description have been used. These are summarised in Table 1-2 for ease of reference. The Project will typically involve one main installation lay vessel and one ancillary support vessel. All cable lay and associated activities will take place within approximately 25 and 31 days per route with the longer durations for Cable Corridor 2.14 Mainland to Lismore and Cable Corridor 2.15 Iona to Mull (see Chapter 2 Project Description; (Document Reference: P2308\_R5368\_Rev0). This broadly reflects all activities associated with the route preparation, shore end beach works, cable lay, post-lay burial and actual vessel activity will be for a shorter duration within this period (approximately 5 to 14 days for most routes – indicative timings can be seen in the MEA Chapter 2 Project Description). These durations include contingency and may be less in practice. The longer timing windows are included to encompass a period within which vessels may be temporarily in the vicinity.

The majority of cable installation operations will be 1knot (2km/hour) or less; approximately 1 knot (2km/hour) for surface lay and 0.3 knots (0.6km/hour) for plough installation, with potential for a small amount of time up to 6 knots (11km/hour) for vessel movement (within the cable corridor when not laying the cable) of installation vessels.

A full Project Description is included in the R100 MEA Chapter 2 (Document Reference: P2308\_R5368\_Rev0).

**Table 1-2 Project assumptions and footprints**

Project Activity	Description / Assumption	Footprint
Vessel positioning	The cable lay will be performed by an installation vessel with a dynamic positioning system.  Anchors are unlikely to be used due to current speeds, however where divers are deployed anchors may be a requirement for safety reasons. The anchor will be within the cable corridor.	Within Cable Corridor
Cable Installation (burial)	Cable trench will be up to 0.5m wide.	0.5m wide
	Excavation tools have the following seabed footprints: Plough <b>2.6m wide</b> (plough share 0.5m and plough skids 1.05m each side) Jetting ROV <b>1m wide</b> (2 x 0.5m wide tracks)	Worst case scenario 2.6m wide
	Coarse sediments deposition – probable fate is to settle back in the very near field (~100m) (Gooding et al 2012)	Within 100m
	Fine grained sediment deposition may travel farther afield (within 1-2km of the cable corridor) (Gooding et al 2012)	Within 2km
	Underwater noise from positioning equipment ultra-short baseline (USBL) used during plough operations Impulsive sound (USBL positioning system for remotely operated vehicle, ROV)	1.1km radii
External cable protection	Crossings – Individual design parameters are defined for each crossing location, as described in the project description.	see Table 1-3 for footprint
Stabilisation	Where the cable is surface laid and metocean conditions are such that stabilisation of the cable is required, rock bags may be placed on the surface laid cable every 50m, as required.	see Table 1-3 for footprint

#### 1.4.2 Overview of installation methods and footprints per cable corridor

This section provides a summary of key information regarding installation techniques (burial, surface laid or a combination of the two) and temporary and permanent footprints for each proposed cable corridor.

To determine the temporary and permanent impacts to the seabed from cable installation activities and external cable protection for each cable corridor, information has been taken from the project description and summarised in Table 1-3. Where applicable, estimated overall footprint areas have been used to assess what percentage of a protected site will be affected.

There are no power cable crossings within the Inner Hebrides geographical area. There is one telecommunications crossing on Route 2.14 Mainland – Lismore where the proposed cable will cross a BT telecommunication cable.

Rock cutting may be used for Cable Corridor 2.13 Eigg to Mainland and Cable Corridor 2.14 Mainland to Lismore, both at the Mainland landing points only. The Mainland landing points (where rock cutting is proposed) are not within protected sites.

The contingency measures provided state the worst-case deposits, which could occur anywhere along the cable corridors, including within protected sites. All assessments have therefore taken into consideration the worse-case deposits, although actual contingencies used could be much less or they may not be required at all.

**Table 1-3 Summary of cable installation methods and footprints per licence application**

Cable Corridor	Pre-Lay Grapnel Run (PLGR)/ Route Clearance (RC) Note 1	Installation method Note 2 Approximate footprint of installation (width of tool x length of installation)					Contingency measures (worst case deposits) Contingencies will be carefully engineered in water depths less than 10m so that they will not reduce the water depth by more than 5%			
		Surface lay *	Plough Note 3 2.6m wide x length of cable corridor (worst case)	Trenching 2m deep x width of excavator bucket (assumed to be 2m)	Rock cutting Note 4 (Length x 0.5m burial x 0.3m width)	ROV Note 5	Boulder relocation Note 6	No. Rock Bags Note 7 3m diameter = 7m <sup>2</sup> per rock bag (8T bag)	No. Concrete Mattress Note 8 6m x 3m = 18m <sup>2</sup> per mattress	Bentonite Cement (m <sup>3</sup> ) Note 9 0.3m x 0.5m x length of rock
2.13 Eigg - Mainland	✓		0.069km <sup>2</sup>	✓	✓ 11.25m <sup>3</sup>	✓		10 bags 70m <sup>2</sup>	3 mattress 54 m <sup>2</sup>	✓ 11.25m <sup>3</sup>
2.14 Mainland - Lismore	✓		0.004km <sup>2</sup>	✓	✓ 2.25m <sup>3</sup>	✓		10 bags 70m <sup>2</sup>	3 mattress 54 m <sup>2</sup>	✓ 2.25m <sup>3</sup>
2.15 Iona - Mull	✓		0.007km <sup>2</sup>	✓		✓		20 bags 70m <sup>2</sup>	3 mattress 54 m <sup>2</sup>	
2.16 Colonsay - Mull	✓		0.062km <sup>2</sup>	✓		✓	✓	10 bags 70m <sup>2</sup>	3 mattress 54 m <sup>2</sup>	

Notes: Definitions of installation activities are given in the project description (Document Reference: P2308\_P5368\_Rev0 MEA Chapter 2).

\* Although the base case is for no surface lay in the Inner Hebrides geographical area, should cable burial not be achievable in any sections of the cable routes, surface lay may be required.

## 1.5 Data Sources

The following data sources, listed in Table 1-4, have been used to inform the Protected Sites Assessment.

**Table 1-4 Data sources**

Receptor	Sources
Birds	<ul style="list-style-type: none"> <li>Joint Nature Conservation Committee (JNCC) website (<a href="https://jncc.gov.uk">https://jncc.gov.uk</a>)</li> <li>NatureScot website (<a href="https://www.nature.scot">https://www.nature.scot</a>)</li> <li>The Royal Society for the Protection of Birds (RSPB) website (<a href="https://www.rspb.org.uk">https://www.rspb.org.uk</a>)</li> <li>Scottish Wildlife Trust website (<a href="https://scottishwildlifetrust.org.uk/">https://scottishwildlifetrust.org.uk/</a>)</li> <li>Wetland Bird Survey (WeBS) Core Count Data (BTO, 2021)</li> <li>BTO report 724: Desk-based revision of seabird foraging ranges used for HRA screening (Woodward <i>et al.</i>, 2019)</li> <li>JNCC Interim Displacement Advice Note (Joint SNCB, 2017)</li> <li>JNCC Report No. 567 An assessment of numbers of wintering divers, seaduck and grebes in inshore marine areas of Scotland (Lawson <i>et al.</i>, 2015)</li> <li>JNCC Report No. 541 Identification of important marine areas in the UK for red-throated divers (<i>Gavia stellata</i>) during the breeding season (Black <i>et al.</i>, 2015)</li> <li>Population Trends of Breeding Seabird Colonies in Scottish SPAs (The Scottish Government, 2012)</li> </ul>
Mammals and Marine Mammals	<ul style="list-style-type: none"> <li>Otter survey reports (Aquatera, 2021)</li> <li>Estimates of cetacean abundance in European Atlantic waters in summer 2016 from the SCANS-III (Hammond <i>et al.</i> 2017)</li> <li>Atlas of Cetacean distribution in north-west European waters (Reid <i>et al.</i>, 2003)</li> <li>Sea Watch Foundation sightings data (Sea Watch Foundation, 2021)</li> <li>Marine Scotland NMPI tool (Marine Scotland, 2021)</li> <li>Updated seal usage maps: The Estimated at-sea Distribution of Grey and Harbour Seals (Russel <i>et al.</i>, 2017)</li> <li>Seal haul out sites (Marine Scotland, 2021)</li> </ul>
In-Combination Effects	<ul style="list-style-type: none"> <li>Marine Scotland Marine Licence Application Public Register (Marine Scotland 2021a)</li> <li>Marine Scotland (2021b) National Marine Plan interactive (NMPI) (Marine Scotland, 2021b)</li> <li>Sea Fish Industry Authority (SEAFISH) Kingfisher Information Service</li> </ul>



## 2. IDENTIFICATION OF RELEVANT PROTECTED SITES

### 2.1 Identification of Relevant Protected Sites

The potential for a protected site to be significantly affected depends on whether receptors which are designating features of a protected site:

- a. Can come into contact with the Project; and
- b. Are sensitive to the installation activities to the extent that the activity is likely to have an adverse effect on the conservation objectives (for European sites or NCMPAs) for the features or effect the integrity of a SSSI.

The HRA and NCMPA Assessment processes require that all European sites and NCMPAs in and around the proposed Project should be identified. In the absence of a stipulated search area, identification of relevant protected sites has been achieved by applying the following steps:

1. Identify which receptors could be sensitive to the installation activities (Section 2.1.1);
2. Identify the potential pressures the proposed installation activities could have on these receptors and what the zone of influence for these receptors is, i.e. the spatial extent over which effects could extend (Section 2.1.2, Table 2-2);
3. Using the zones of influence as a guide, define a search area within which protected sites are identified to determine if the relevant receptor is a designated feature of the site (Section 2.1.2, Table 2-2);
4. Screen protected sites within the defined search areas to assess whether a pathway for effect (pressure-receptor pathway) exists between the interest features of the protected sites and the pressures exerted by the Project.

Under the Nature Conservation (Scotland) Act 2004, the local planning authority, all landowners and occupiers, and the Secretary of State must be provided with notification of any activities or works within or adjacent to a SSSI. Therefore, any SSSI within or adjacent to a proposed cable application corridor has been identified as a relevant protected site for assessment in the SSSI assessment (Section 5).

Where a European site has been identified as a relevant protected site and it is also designated as a SSSI, the site has been assessed in the HRA only and has not been repeated in the SSSI assessment.

#### 2.1.1 Identification of sensitive receptors

The receptors which could potentially be affected by the Project and could be the designating interest features of protected sites are:

- Intertidal and benthic habitats;
- Fish (including basking shark);
- Birds;
- Marine mammals (cetaceans and pinnipeds); and
- Otter.

A geographical information system (GIS) was used to map the boundaries of protected sites in relation to the Project. Since the geographical scope of the Project is within the marine environment (below

MHWS), protected sites with either a marine component or marine features (features which occur within or utilise the marine environment) have been included in the assessments. In addition to this, protected sites at the landfalls which may be defined as terrestrial and whose features may interact with the Project activities have been included in the assessments (see Figure 2-1; Drawing Reference: P2308-PROT\_005\_IH-B).

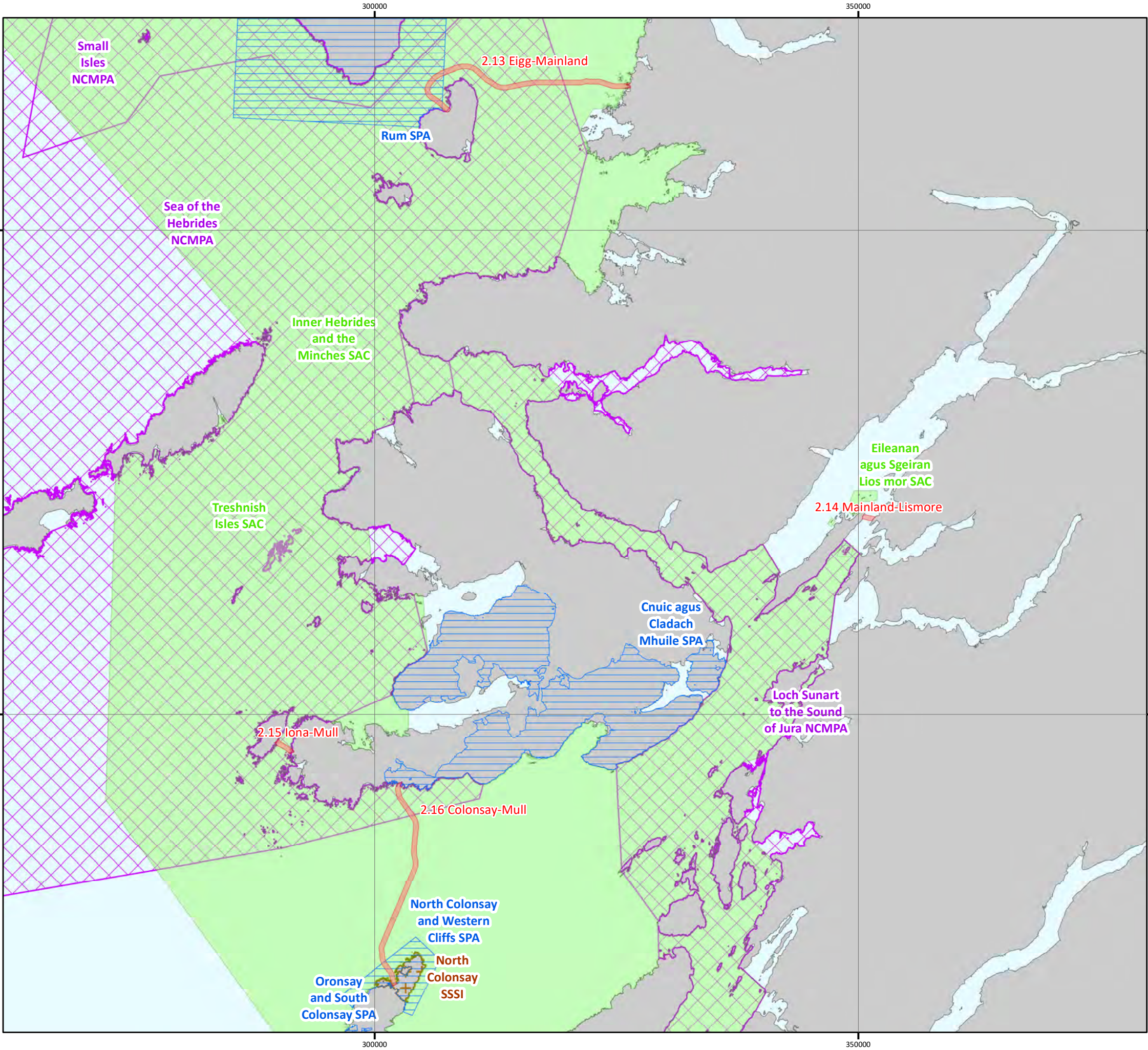
### 2.1.2 Defining a search area (identification of potential pressures and zone of influence)

The Joint Nature Conservation Committee (JNCC) pressure list 2021, which is based on the OSPAR Intercessional Correspondence Group on Cumulative Effects (ICG-C) pressure list and descriptions (OSPAR Commission 2011) has been used to describe the potential pressures expected from the proposed installation activities. Listed in Table 2-1, these potential pressures may be direct or indirect, temporary, or permanent, beneficial, or harmful to the protected site, or a combination of these.

Table 2-2 identifies the pressures that have been scoped out of the protected sites assessment and the reason for the exclusion. These pressures will not be discussed further.

The zone of influence – the predicted spatial extent over which effects may extend – has also been defined. The zone of influence has been used to establish a search area within which protected sites are screened for a relevant qualifying interest feature. Since mobile species from protected sites further afield may travel into the zone of influence, the zone of influence cannot be used alone as a distance to screen in relevant protected sites. Therefore, search areas (distances from the Project) for each receptor group have been applied taking into consideration other information such as marine mammal management units, bird foraging distances and expert judgement. Justification for the spatial extent of the search area is provided in Table 2-1.





SCOTTISH ISLES  
FIBRE OPTIC CABLE PROJECT

PROTECTED SITES  
Relevant Protected Sites  
Inner Hebrides

Drawing No: P2308-PROT-005\_IH

B

Legend

Cable Route Application Corridor

Environmental Designation

SAC

SPA

NCMPA

SSSI



NOTE: Not to be used for Navigation

Date	27 October 2021
Coordinate System	WGS 1984 UTM Zone 30N
Projection	Transverse Mercator
Datum	WGS 1984
Data Source	ESRI; OSOD; SNH
File Reference	J:\P2308\Mxd\02_PROT\ P2308-PROT-005_IH.mxd
Created By	Jessica Harvey
Reviewed By	Chris Dawe
Approved By	Jill Hobbs



0 5 10 15 20 km

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**Table 2-1 Potential pressures, zones of influence and protected site search area**

Receptor	Potential Pressure	Project Activity	Zone of influence	Search Area and Justification
Habitats	Siltation rate changes, including smothering (depth of vertical sediment overburden)	Cable burial	Coarse grained sediment 100m (Gooding et al 2012)	<b>Application area</b> Effects on the habitat because of the installation activities may occur along the entire route of each cable.
	Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	Seabed preparation Cable burial	Within footprint of installation tools Installation Plough (skids + share) 2.6m wide (disturbance) Plough share width 0.5m x 1m deep (penetration)	
		Anchor placement	Within direct footprint of anchors - Immediate area of anchor placement within the application area	
	Abrasion/disturbance of the substrate on the surface of the seabed	Anchor placement Surface laid cable	Area where anchor chains drag on the seabed Footprint of surface laid cable	
	Change to another seabed type	Placement of rock bags and/or concrete mattresses for stabilisation of surface laid cable	Within footprint of rock bags (a rock bag may be placed every 50m along a section of surface laid cable) Within footprint of concrete mattresses (a concrete mattress may be used for contingency protection of surface laid cable) A marine grade cement such as Bentonite or similar will be used to backfill any areas where rock cutting has taken place.	
Fish	Collision below water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures)	Presence of installation vessel	Specifically relating to basking shark, which are known to spend significant time at the surface and are more vulnerable to collision. Within path of the cable installation vessel	<b>Application area</b>

Receptor		Potential Pressure	Project Activity	Zone of influence	Search Area and Justification
Birds		Visual and above water noise disturbance	Presence of installation vessel Cable burial	Radial distances from application corridor <ul style="list-style-type: none"> <li>10km Red-throated diver (pers coms Alex Robbins, Nature Scot, 13/07/2021)</li> <li>4 km divers and sea ducks (JNCC 2017)</li> <li>2 km all other seabird species (JNCC 2017)</li> </ul>	<b>10km</b> It is recognised that some seabirds from other SPAs will forage and loaf in the zone of influence. However, disturbance will be limited in extent and duration and there is sufficient space in the surrounding environment for birds to temporarily relocate. Therefore, only sites within 10km of the Project have been screened for qualifying bird features.
		Changes to supporting habitat and prey availability	Cable burial	Installation Plough (skids + share) 2.6m wide (disturbance)	<b>Application area</b> Effects on the habitat because of the installation activities may occur along the entire route of each cable.
Cetacean and pinniped		Changes to underwater noise (impulsive sound)	Impulsive sound from use of an Ultra Short Baseline (USBL) positioning system for positioning the ROV during post cable lay inspection	Disturbance distance 1.1km radius (worst-case disturbance radius from USBL)	<b>Management Unit</b> In recognition of the highly mobile nature of cetaceans the relevant species management unit will define the search area.
Cetacean		Changes to supporting habitat and prey availability	Cable burial	Installation Plough (skids + share) 2.6m wide (disturbance)	<b>Management Unit</b> Effects on habitat as a result of the installation activities may occur along the entire route of each cable.
Pinniped	Grey Seal	Visual (and above water noise) disturbance	Presence of installation vessel	500 m radius (pers comms – NatureScot 2021)	<b>100 km:</b> While the zone of influence for visual (and above water noise) disturbance of seals has been found to be 500m, grey seals have been found to forage up to 100km from their haul-out sites (Cunningham et al., 2009; SMRU, 2017).
	Harbour Seal				<b>50 km:</b> Harbour seals prefer to come ashore in sheltered waters, and they usually feed within 40-50 km from their haul-out site (NatureScot website).
	All	Changes in supporting habitat and prey availability	Cable burial	Installation Plough (skids + share) 2.6 m wide (disturbance)	<b>Application area</b> Effects on the habitat as a result of the installation activities may occur along the entire route of each cable.

**Table 2-2 Pressures scoped out and reason for exclusion**

Pressure scoped out	Receptor	Reason for Exclusion
Accidental hydrocarbon and PAH contamination	All receptors	<p>Unplanned events (accidental oil or chemical spills) have been scoped out of the protected sites assessment for the following reasons:</p> <p>The likelihood of a large oil spill occurring from a Project vessel is extremely low and the risk is no greater than that for any other vessel in the region.</p> <p>It is illegal under the Regulation 26 of Annex I of MARPOL for vessels to pollute the marine environment. To ensure compliance with statute all vessels must have control measures and an approved shipboard oil pollution emergency plan in place. Legal compliance ensures that there are no significant effects on a protected site.</p>
Siltation rate changes including smothering (depth of vertical sediment overburden)	Habitat	Far field effects have not been considered as deposition thicknesses are minimal and not sufficient to cause smothering past 100m. (Goodall et al., 2012).
Water flow (tidal current) changes including sediment transport considerations.	Habitat	The footprint of any placed contingency cable protection will be limited to that required to ensure cable stability on the seabed. The cable protection can cause localised scour in sedimentary environments; however, it will be limited in extent. No change to water flow (tidal current) is expected.
Introduction or spread of invasive non-indigenous species (INIS)	Habitat	The introduction of INIS (e.g. through discharge of ballast water from Project vessels) will be managed under the International Convention for the Control and Management of Ship's Ballast Water and Sediments. It is illegal under the IMO Ballast Water Management Convention for vessels to pollute the marine environment. To ensure compliance with statute all vessels must have control measures and an approved Shipboard Oil Pollution Emergency Plan in place. Legal compliance ensures that there are no significant effects on a protected site.
Visual (and above water noise) disturbance	Fish	During cable installation, the presence of the installation vessels and equipment (and associated noise) could result in the Visual (and above water noise) disturbance of fish within the vicinity of operations, with some displacement of fish within the water column. However, the disturbance from installation operations will be temporary, localised, and given existing background levels of noise and shipping in Scottish waters, fish are likely to be habituated to such disturbance. Therefore, no significant effects will occur.
Siltation rate changes including smothering (depth of vertical sediment overburden)	Fish	There are three pathways for species to be smothered as a result of Project activities: by displaced sediments during trenching; by the re-deposition of suspended sediment; and by external cable protection material being placed on the seabed (i.e. included in the application as a contingency). The effect from displaced sediment will be very localised, only affecting species in the immediate vicinity of cable installation. Suspended sediment settlement levels will be minimal with any material deposited quickly re-suspended and distributed by natural hydrodynamic processes. Therefore, no significant effect will occur.
Collision BELOW water with static or moving objects not naturally found in the marine environment (e.g., boats, machinery, and structures)	Marine mammals and basking shark	Due to the limited spatial and temporal extent and slow speed (the majority of cable installation operations will be 1knot (2km/hour) or less; approximately 1 knot (2km/hour) for surface lay and 0.3 knots (0.6km/hour) for plough installation, with potential for a small amount of time up to 6 knots (11km/hour) for vessel movement within the cable corridor when not laying the cable) of installation vessels within the cable corridors, this pressure has been scoped out of the Protected Sites Assessment.

Pressure scoped out	Receptor	Reason for Exclusion
Underwater noise changes (continuous and impulsive sound)	Fish (including basking shark)	<p>Data sources available (Popper et al. 2014 and OSPAR Commission 2012) consider that the potential for likely significant effects to fish from cable installation activities is low. Many species of fish lack the specialisations for receiving sound, therefore no effects to these groups of fish are anticipated.</p> <p>Potential effects are limited to fish with hearing specialties. To sustain an injury fish would need to be within close proximity of the vessel for 24 hours, which is extremely unlikely based on the migratory and predatory nature of these specialised species. Therefore, the effect of underwater noise changes to fish will not have a significant effect.</p>
Underwater noise changes (continuous sound)	Marine mammals	<p>Shipping and fishing activity are common across the Project area. Vessels transit the area routinely, generating relatively high levels of noise. As a result, it is likely that marine mammal populations in the Project area are habituated to continuous noise of the type generated during cable installation activity.</p> <p>Cable installation does not constitute a change from baseline vessel densities in the area. Therefore, the effect of underwater noise changes from cable installation will not have a significant effect.</p>

## 2.2 Relevant Protected Sites

The initial examination of protected sites identified 11 sites where a possible pressure-receptor pathway exists within the Inner Hebrides geographical area. Of these, seven were European Sites, three were NCMPAs and one was a SSSI.

European sites to be considered in the HRA Screening include:

- Inner Hebrides and the Minches SAC
- Eileanan agus Sgeiran Lios mor SAC
- Treshnish Isles SAC
- Cnuic agus Cladach Mhuile SPA
- North Colonsay and Western Cliffs SPA
- Rum SPA
- Oronsay and South Colonsay SPA

Protected sites to be considered in the NCMPA Assessment include:

- Sea of the Hebrides NCMPA
- Small Isles NCMPA
- Loch Sunart to the Sound of Jura NCMPA

Protected sites to be considered in the SSSI Assessment include:

- North Colonsay SSSI



## 3. HRA STAGE 1 SCREENING

### 3.1 Screening Approach

#### 3.1.1 Approach to Screening for Appropriate Assessment (AA)

One or more of the Inner Hebrides geographical area cable corridors is located within or adjacent to a European site, therefore there exists the potential for the Project to have a significant effect on a European site. As such the proposed Project must be screened to determine if Appropriate Assessment (AA) is required.

Screening for AA has been undertaken by applying the following steps:

1. Compile information on the qualifying interest features and conservation objectives of the identified relevant European sites.
2. Consider the Project activities and the changes that they may cause that may be relevant to the European sites.
3. Identify if any elements of the Project are likely to have a significant effect on any of the qualifying interest features, alone or in-combination with other projects and plans, directly or indirectly.
4. Provide screening statement with conclusions. If significant effects are likely or uncertain, proceed to AA.

Although the process is laid out as sequential steps, in practice steps 2 and 3 have been undertaken concurrently.

All current case law relevant to the Habitats Directive has been applied. The European Court of Justice ruling CJEU C-323/17 (People Over Wind and Peter Sweetman vs Coillte Teoranta) has clarified that mitigation measures should not be applied during Screening for AA.

No mitigation has been considered during the screening process.

All European sites have been mapped in GIS, with distances measured from the edge of the cable corridor to the edge of the European site at the closest point assessed in this report. Only marine European sites, and European sites containing marine features have been included. Screening conclusions have been determined based on the following criteria for 'screened in' and 'screened out':

- Screened in: A pathway between the Project and the interest feature can be identified that is likely to result in an effect, or a pathway between the activities and the interest features can be identified but it is uncertain whether or not a significant effect is likely.
- Screened out: Either a pathway between the project and the qualifying interest features cannot be identified or a pathway exists but there is no physical overlap of the pressure and the interest feature, or because any potential effects would be insignificant, being so restricted or remote from the site that they would not undermine the conservation objectives for the conservation site.

Screened out sites have not been assessed further; all screened in sites have been taken forward for further assessment in the Stage 2 Information to Inform AA (Section 6).

#### 3.1.2 Approach to Screening the Project in-combination with other plans or projects

The Conservation (Natural Habitats, &c.) Regulations 1994 (CHSR) (as amended) requires that any plans or projects likely to have a significant effect either individually or in combination with other plans or projects, shall be subject to AA of its implications for the site in view of the site's conservation objectives.

Only plans or projects that would increase the likelihood of significant effects on a European site should be considered. Where the proposed Project could result in a likely significant effect it will automatically be taken forward to Stage 2 (AA) and therefore there is no need to assess during the screening stage if in-combination effects are possible.

Where the proposed Project has no likely significant effects, in-combination effects assessment is not required since the proposed Project is not contributing to an effect. It is only where the proposed Project could result in a minor effect on a European site that in combination effects with other plans or projects should be assessed to determine whether together with other plans or projects the Project could result in a significant effect.

### 3.2 Screening Relevant European sites for AA

Table 3-1 presents the results of the screening of the identified relevant European sites for AA. The distances have been measured from the closest point on the European site to the closest point of the cable corridor.

**Table 3-1 Screening relevant European sites for AA**

Site Name & Code	Primary and qualifying features	Cable Corridor	Distance (km)	Potential pressure	Potential pressure-receptor pathway for LSE	Screening decision
Inner Hebrides and the Minches SAC (UK0030393)	<b>Annex II Species (Primary Reason for selection)</b>  Harbour porpoise ( <i>Phocoena phocoena</i> )	Cable 2.13	0.0	Underwater noise changes	Screened in for further assessment as underwater noise generated by installation activities could lead to disturbance of harbour porpoise in the vicinity of such noise.  Potential for LSE, AA is required.	SCREENED IN
		Cable 2.15	0.0			
		Cable 2.16	0.0			
		Cable 2.14	2.8			
		Cable 2.13	0.0	Changes in supporting habitat and prey availability	Cable installation activities for these cable corridors will disturb an area of approximately 0.14km², which is 0.001% of the SAC’s marine area. Temporary disturbance to such a small area of the protected site will not result in any significant adverse effects.to supporting habitat and prey availability.  No LSE, AA is not required.	SCREENED OUT
		Cable 2.15	0.0			
		Cable 2.16	0.0			
		Cable 2.14	2.8			
			No pressure/receptor pathway exists for changes in supporting habitat and prey availability due to the distance of this cable corridor from the SAC.	SCREENED OUT		
Eileanan agus Sgeiran Lios mor SAC (UK0030182)	Eileanan agus Sgeiran Lios mor SAC (UK0030182)	Cable 2.14	0.54	Visual (and above water noise) disturbance	Seals typically can be disturbed at haul-out sites at a distance of 500m or less (pers comms – NatureScot 2021).  Additionally, the SAC is on the opposite side of Lismore to the installation activities, so there is no visual line of sight from the SAC to the installation activities. As such, installation activities for these cable corridors will not lead to visual and above water noise disturbance of harbour seal.  No LSE, AA is not required.	SCREENED OUT
		Cable 2.16	42.1		Seals typically can be disturbed at haul-out sites at a distance of 500m or less (pers comms – NatureScot 2021). As such, installation activities for these cable corridors will not lead to visual and above water noise disturbance of harbour seal.  No LSE, AA is not required.	
		Cable 2.13	47.6			
		Cable 2.15	50.9			

Site Name & Code	Primary and qualifying features	Cable Corridor	Distance (km)	Potential pressure	Potential pressure-receptor pathway for LSE	Screening decision
		Cable 2.14	0.5	Underwater noise changes	Screened in for further assessment as underwater noise generated by installation activities could lead to disturbance of harbour seal in the vicinity of such noise. Potential for LSE, AA is required.	SCREENED IN
		Cable 2.16	42.1		While harbour seal can range far from their haul-out sites for feeding purposes, harbour seals typically forage 11-21km from their haul-out site (DECC, 2016). As such, the potential for individuals from this site to be found in significant numbers in the vicinity of installation activities is low. No LSE, AA is not required.	SCREENED OUT
		Cable 2.13	47.6			
		Cable 2.15	50.9			
	<b>Annex II Species (Primary Reason for selection)</b> Harbour seal ( <i>Phoca vitulina</i> )	Cable 2.14	0.5	Changes in supporting habitat and prey availability	No pressure/receptor pathway exists for changes in supporting habitat and prey availability due to the distance of these cable corridors from the SAC.	SCREENED OUT
		Cable 2.16	42.1			
		Cable 2.13	47.6			
		Cable 2.15	50.9			
	<b>Annex I Habitats (Qualifying features)</b> Reefs	Cable 2.15	16.1	No pressure-receptor pathway identified	No pressure-receptor pathway identified due to the distance of these cable corridors to the SAC. The proposed installation activities will not interact with the reef habitat.	SCREENED OUT
		Cable 2.16	24.4			
		Cable 2.13	44.7			
		Cable 2.14	56.7			
	<b>Annex II Species (Primary Reason for selection)</b> ▪ Grey seal ( <i>Halichoerus grypus</i> )	Cable 2.15	16.1	Visual (and above water noise) disturbance	Seals typically can be disturbed at haul-out sites at a distance of 500m or less (pers comms – NatureScot 2021). As such, installation activities for these Cable Corridors will not lead to visual and above water noise disturbance of harbour seal. No LSE, AA is not required.	SCREENED OUT
		Cable 2.16	24.4			
		Cable 2.13	44.7			
		Cable 2.14	56.7			
		Cable 2.15	16.1	Underwater noise changes	Screened in for further assessment as underwater noise generated by installation activities could lead to disturbance of grey seals in the vicinity of such noise.	SCREENED IN
		Cable 2.16	24.4			
		Cable 2.13	44.7			

Site Name & Code	Primary and qualifying features	Cable Corridor	Distance (km)	Potential pressure	Potential pressure-receptor pathway for LSE	Screening decision		
		Cable 2.14	56.7	Changes in supporting habitat and prey availability	Potential for LSE, AA is required.	SCREENED OUT		
		Cable 2.15	16.1		No potential pressure/receptor pathway exists as the cable corridors are not located within the SAC. No LSE, AA is not required.			
		Cable 2.16	22.9					
		Cable 2.13	44.8					
		Cable 2.14	56.7					
Cnuic agus Cladach Mhuile SPA (UK9003311)	<b>Article 4.1 Annex I (Breeding)</b> <ul style="list-style-type: none"><li>Golden eagle (<i>Aquila chrysaetos</i>)</li></ul>	Cable 2.16	0.0	Visual (and above water noise) disturbance	Screened in for further assessment as installation activities could lead to disturbance to individuals nesting and foraging within the site. Potential for LSE, AA is required.	SCREENED IN		
		Cable 2.15	9.6		Golden eagle are a terrestrial species of bird, and typically only forage up to 7km from their nest during the breeding season (Tesky, 1994). No potential pressure/receptor pathway exists as the cable corridors due to the distance of the cable corridors from the SPA. No LSE, AA is not required.	SCREENED OUT		
		Cable 2.14	19.8					
		Cable 2.13	49.3	Changes in supporting habitat and prey availability	Golden eagle are a terrestrial species of bird (Tesky, 1994). Therefore, there will be no impact from the installation activities on the supporting habitat or prey of golden eagle. No LSE, AA is not required.	SCREENED OUT		
		Cable 2.16	0.0					
		Cable 2.15	9.6				No potential pressure/receptor pathway exists as the cable corridors are not located within the SPA. No LSE, AA is not required.	SCREENED OUT
		Cable 2.14	19.8					
		Cable 2.13	49.3					
		North Colonsay and Western Cliffs SPA (UK9003171)	<b>Article 4.1 Annex I (Breeding and Wintering)</b> <ul style="list-style-type: none"><li>Chough (<i>Pyrrhocorax pyrrhocorax</i>)</li></ul> <b>Article 4.2 Seabird Assemblage (Breeding)</b>	Cable 2.16	0.0	Visual (and above water noise) disturbance	All species are screened in for further assessment as Cable Corridor 2.16 Colonsay to Mull is within the SPA. Disturbance to individuals nesting within the site could occur from installation activities. Potential for LSE, AA is required.	SCREENED IN
Cable 2.15	22.8				SCREENED IN			

Site Name & Code	Primary and qualifying features	Cable Corridor	Distance (km)	Potential pressure	Potential pressure-receptor pathway for LSE	Screening decision
(UK9003171)	<b>Article 4.2 Seabird Assemblage (Breeding)</b> <ul style="list-style-type: none"> <li>Guillemot (<i>Uria aalge</i>)</li> </ul> Kittiwake ( <i>Rissa tridactyla</i> )	Cable 2.15	22.8		Screened in for further assessment as guillemot are considered to be sensitive to visual and above water noise disturbance (JNCC, 2017) and the cable corridors are within the mean max foraging range for the species (73.2km) (Woodward et al., 2019). Potential for LSE, AA is required.	SCREENED IN
		Cable 2.14	63.1			
		Cable 2.13	85.2		Screened out as this cable corridor is outside of guillemot mean max foraging range (73.2km) (Woodward et al., 2019). No LSE, AA is not required.	SCREENED OUT
	<b>Article 4.1 Annex I (Breeding Wintering)</b> <ul style="list-style-type: none"> <li>Chough (<i>Pyrhcorax pyrrhcorax</i>)</li> </ul> <b>Article 4.2 Seabird Assemblage (Breeding)</b> <ul style="list-style-type: none"> <li>Kittiwake (<i>Rissa tridactyla</i>)</li> </ul>	Cable 2.15	22.8		Kittiwake are considered to have a low sensitivity to visual and above water noise disturbance from vessel movements (JNCC, 2017). As such, the species will not be significantly disturbed by installation activities associated with the other cable corridors. Chough are terrestrial/coastal birds and as such will not be present within/around the vicinity of, installation activities for these cable corridors. No LSE, AA is not required.	SCREENED OUT
		Cable 2.14	63.1			
		Cable 2.13	85.2			
	<b>Article 4.1 Annex I (Wintering)</b> <ul style="list-style-type: none"> <li>Chough (<i>Pyrhcorax pyrrhcorax</i>)</li> </ul> <b>Article 4.2 Seabird Assemblage (Breeding)</b> <ul style="list-style-type: none"> <li>Kittiwake (<i>Rissa tridactyla</i>)</li> <li>Guillemot (<i>Uria aalge</i>)</li> </ul>	Cable 2.16	0.0	Changes in supporting habitat type and prey availability	Cable installation activities will disturb An area of approximately 0.007km <sup>2</sup> , which is 0.03% of the SPA's marine area. Temporary disturbance to such a small area of the protected site will not result in any significant adverse effects to supporting habitat and prey availability No LSE, AA is not required.	SCREENED OUT
		Cable 2.15	22.8		No potential pressure/receptor pathway exists as the cable corridors are not located within the SPA. No LSE, AA is not required.	SCREENED OUT
		Cable 2.14	63.1			
		Cable 2.13	85.2			
Rum SPA (UK9001341)	<b>Article 4.1 Annex I (Breeding)</b> <ul style="list-style-type: none"> <li>Red-throated diver (<i>Gavia arctica</i>)</li> </ul>	Cable 2.13	0.0	Visual (and above water noise) disturbance	All species are screened in for further assessment as Cable Corridor 2.13 Eigg to Mainland is within the SPA.	SCREENED IN

Site Name & Code	Primary and qualifying features	Cable Corridor	Distance (km)	Potential pressure	Potential pressure-receptor pathway for LSE	Screening decision
	<b>Article 4.2 Migratory (Breeding)</b> <ul style="list-style-type: none"><li>Manx shearwater (<i>Puffinus puffinus</i>)</li></ul> <b>Article 4.2 Seabird Assemblage (Breeding)</b> <ul style="list-style-type: none"><li>Guillemot (<i>Uria aalge</i>)</li></ul> Kittiwake ( <i>Rissa tridactyla</i> )				Disturbance to individuals nesting within the site could occur from installation activities. Potential for LSE, AA is required.	SCREENED IN
	<b>Article 4.2 Seabird Assemblage (Breeding)</b> Guillemot ( <i>Uria aalge</i> )	Cable 2.14	60.4		Screened in for further assessment as guillemot are considered to have moderate sensitivity to visual and above water noise disturbance and these cable corridors are within the species mean max foraging range (73.2km) (JNCC, 2017; Woodward et al. 2019). Potential for LSE, AA is required	
		Cable 2.15	63.9			
		Cable 2.16	67.7			
	<b>Article 4.1 Annex I (Breeding)</b> <ul style="list-style-type: none"><li>Red-throated diver (<i>Gavia arctica</i>)</li></ul> <b>Article 4.2 Migratory (Breeding)</b> <ul style="list-style-type: none"><li>Manx shearwater (<i>Puffinus puffinus</i>)</li></ul> <b>Article 4.2 Seabird Assemblage (Breeding)</b> Kittiwake ( <i>Rissa tridactyla</i> )	Cable 2.14	60.4		Kittiwake and Manx shearwater are considered to have a low sensitivity to visual and above water noise disturbance from vessel movements (JNCC, 2017). As such, the species will not be significantly disturbed by installation activities associated with the other cable routes.  These cable corridors are located outside of the red-throated divers mean max foraging range (9km) (Woodward et al., 2019).  No LSE, AA is not required.	SCREENED OUT
		Cable 2.15	63.9			
		Cable 2.16	67.7			
	<b>Article 4.1 Annex I (Non-Breeding)</b> Golden eagle ( <i>Aquila chrysaetos</i> )	Cable 2.13	0.0		Cable Corridor 2.13 Eigg to Mainland crosses through the south-east corner of the marine area of Rum SPA. Rum SPA includes the Island of Rum, and adjacent coastal waters. Golden eagles are terrestrial birds which will be present on Rum and as such will not be present within/in the vicinity of installation activities.  No LSE, AA is not required.	SCREENED OUT
		Cable 2.14	60.4			
		Cable 2.15	63.9			
		Cable 2.16	67.7			
	<b>Article 4.1 Annex I (Breeding)</b>	Cable 2.13	0.0	Changes in supporting habitat	Cable installation activities will disturb an area of approximately 0.007km <sup>2</sup> , which is 0.03% of the SPA's marine area. Temporary disturbance to such a small area of the	SCREENED OUT

Site Name & Code	Primary and qualifying features	Cable Corridor	Distance (km)	Potential pressure	Potential pressure-receptor pathway for LSE	Screening decision
	<ul style="list-style-type: none"> <li>Red-throated diver (<i>Gavia arctica</i>)</li> </ul> <b>Article 4.2 Migratory (Breeding)</b> <ul style="list-style-type: none"> <li>Manx shearwater (<i>Puffinus puffinus</i>)</li> </ul> <b>Article 4.1 Annex I (Non-Breeding)</b> <ul style="list-style-type: none"> <li>Golden eagle (<i>Aquila chrysaetos</i>)</li> </ul> <b>Article 4.2 Seabird Assemblage (Breeding)</b> <ul style="list-style-type: none"> <li>Guillemot (<i>Uria aalge</i>)</li> </ul> Kittiwake ( <i>Rissa tridactyla</i> )			and prey availability	<p>protected site will not result in any significant adverse effects to supporting habitat and prey availability.</p> <p>Additionally, supporting habitat for Golden Eagle will not be changed as they are a terrestrial species. Prey availability will not be affected as seabirds will be displaced briefly and Golden eagle will still be able to forage on land.</p> <p>No potential pressure/receptor pathway exists as cable routes are not found within the site.</p> <p>No LSE, AA is not required.</p>	
		Cable 2.14	60.4		<p>Supporting habitat for Golden Eagle will not be changed as they are a terrestrial species. Prey availability will not be affected as seabirds will be displaced briefly and golden eagle will still be able to forage on land.</p> <p>No potential pressure/receptor pathway exists as cable routes are not found within the site.</p> <p>No LSE, AA is not required.</p>	SCREENED OUT
		Cable 2.15	63.9			
		Cable 2.16	67.7			
Oronsay and South Colonsay SPA (UK9020299)	<b>Article 4.1 Annex I (Breeding and Wintering)</b> <ul style="list-style-type: none"> <li>Chough (<i>Pyrrhocorax pyrrhocorax</i>)</li> </ul> <b>Article 4.1 Annex I (Breeding)</b> Corncrake ( <i>Crex crex</i> )	Cable 2.16	4.9	Visual (and above water noise) disturbance	<p>Corncrake and chough are terrestrial and as such will not be present within/in the vicinity of installation activities.</p> <p>No LSE, AA is not required.</p>	SCREENED OUT
		Cable 2.15	28.8			
		Cable 2.14	72.3			
		Cable 2.13	94.7			
	<b>Article 4.1 Annex I (Breeding and Wintering)</b> <ul style="list-style-type: none"> <li>Chough (<i>Pyrrhocorax pyrrhocorax</i>)</li> </ul> <b>Article 4.1 Annex I (Breeding)</b> Corncrake ( <i>Crex crex</i> )	Cable 2.16	4.9	Changes in supporting habitat and prey availability	<p>No potential pressure/receptor pathway exists as the cable corridors are not located within the SPA.</p> <p>No LSE, AA is not required</p>	SCREENED OUT
		Cable 2.15	28.8			
		Cable 2.14	72.3			
		Cable 2.13	94.7			



### 3.3 Screening Statement and Conclusions

To determine whether the Project is likely to have a significant effect on any European sites, either individually or in-combination with other plans or projects, HRA Screening was carried out.

The HRA screening initially identified seven relevant European sites where a possible pressure-receptor pathway existed between the sites and the Project activities. These seven sites were subject to screening which involved further analysis taking into consideration the qualifying interest features. Screening identified that for all seven of the European sites, it could not be ruled out that the Project activities will not result in a LSE. These seven sites are composed of the following types:

- Three SAC,
- Four SPA.

A review of the Project activities identified two pressures that could be exerted on qualifying features of the seven European sites. These were:

- Visual (and above water noise) disturbance.
- Underwater noise.

A summary of the screening conclusion for each site is detailed in Table 3-2 below.

**Table 3-2 Summary of Screening conclusions for European Sites**

Site Name and Code	Applicable Qualifying Feature/s	Potential Pressure/s	Cable Corridor(s)	Screening Conclusion
Inner Hebrides and the Minches SAC (UK0030393)	Harbour porpoise	Underwater noise changes	All Cable Corridors	<b>Screened in Potential</b> for LSE, AA is required
		Changes in supporting habitat and prey availability		<b>Screened out</b> No potential for LSE, AA is not required
Eileanan agus Sgeiran Lios mor SAC (UK0030182)	Harbour seal	Visual (and above water noise) disturbance	All Cable Corridors	<b>Screened out</b> No potential for LSE, AA is not required
		Underwater noise changes	2.14	<b>Screened in Potential</b> for LSE, AA is required
			2.13, 2.15, and 2.16	<b>Screened out</b> No potential for LSE, AA is not required
		Changes in supporting habitat and prey availability	All Cable Corridors	<b>Screened out</b> No potential for LSE, AA is not required
Treshnish Isles SAC (UK0030289)	Reefs	No pressure-receptor pathway identified	All Cable Corridors	<b>Screened out</b> No potential for LSE, AA is not required
	Grey seal	Visual (and above water noise) disturbance	All Cable Corridors	<b>Screened out</b> No potential for LSE, AA is not required
		Underwater noise changes		<b>Screened in Potential</b> for LSE, AA is required
		Changes in supporting habitat and prey availability		<b>Screened out</b> No potential for LSE, AA is not required

Site Name and Code	Applicable Qualifying Feature/s	Potential Pressure/s	Cable Corridor(s)	Screening Conclusion
Cruic agus Cladach Mhuile SPA (UK9003171)	<b>Breeding:</b> golden eagle	Visual (and above water noise) disturbance	2.16	<b>Screened in Potential</b> for LSE, AA is required
			2.13, 2.14, 2.15	<b>Screened out</b> No potential for LSE, AA is not required
North Colonsay and Western Cliffs SPA (UK9003171)	<b>Breeding:</b> guillemot, black legged kittiwake <b>Breeding and Non-breeding:</b> chough	Visual (and above water noise) disturbance	2.16	<b>Screened in Potential</b> for LSE, AA is required
	<b>Breeding:</b> guillemot		2.14 and 2.15	<b>Screened in Potential</b> for LSE, AA is required
			2.13	<b>Screened out</b> No potential for LSE, AA is not required
	<b>Breeding:</b> black legged kittiwake <b>Breeding and Non-breeding:</b> chough		2.13, 2.14 and 2.15	<b>Screened out</b> No potential for LSE, AA is not required
	<b>Breeding:</b> guillemot, black legged kittiwake <b>Non-breeding:</b> chough	Changes in supporting habitat type	All Cable Corridors	<b>Screened out</b> No potential for LSE, AA is not required
Rum SPA (UK9001341)	<b>Breeding:</b> guillemot, black-legged kittiwake, manx shearwater, red-throated diver	Visual (and above water noise) disturbance	2.13	<b>Screened in Potential</b> for LSE, AA is required
	<b>Breeding:</b> golden eagle		All Cable Corridors	<b>Screened out</b> No potential for LSE, AA is not required
	<b>Breeding:</b> guillemot		2.14, 2.15 and 2.16	<b>Screened in Potential</b> for LSE, AA is required
	<b>Breeding:</b> black-legged kittiwake, manx shearwater, red-throated diver		2.14, 2.15 and 2.16	<b>Screened out</b> No potential for LSE, AA is not required
	<b>Breeding:</b> black-legged kittiwake, manx shearwater, red-throated diver, guillemot, golden eagle	Changes in supporting habitat type	All Cable Corridors	<b>Screened out</b> No potential for LSE, AA is not required
Oronsay and South Colonsay SPA (UK9020299)	<b>Breeding:</b> chough, corncrake <b>Non-Breeding:</b> chough	Visual (and above water noise) disturbance	All Cable Corridors	<b>Screened out</b> No potential for LSE, AA is not required
		Changes in supporting habitat type		<b>Screened out</b> No potential for LSE, AA is not required

## 4. NCMPA ASSESSMENT

### 4.1 Assessment Approach

The following NCMPAs were identified as relevant protected sites and as such have been considered in the NCMPA assessment:

- Sea of the Hebrides NCMPA
- Small Isles NCMPA
- Loch Sunart to the Sound of Jura NCMPA

In accordance with Section 126 of the Marine and Coastal Access Act (MCAA) (2009), a Stage 1 NCMPA assessment was undertaken for identified relevant NCMPAs to determine whether the conditions in S.126(6) can be met. The assessment has determined whether:

- There is no significant risk that the Project activities, either alone or in combination with other plans or projects, will hinder the conservation objectives of the NCMPAs; and
- The competent authority can exercise its function to further the conservation objectives of the site.

If the condition in S.126(6) could not be met the Stage 1 assessment also considered whether the condition in S.127(7)(a) could be met by determining whether:

- There is no other means of proceeding with the act which would create a substantially lower risk of hindering the achievement of the conservation objectives stated for the NCMPA. This includes proceeding with it (a) in another manner, or (b) at another location.

The assessment of relevant NCMPAs has considered the feature(s) for which the NCMPA(s) has been designated, the current status of those features and the conservation objectives against each feature.

Table 4-1 below presents the results of the screening of the identified relevant NCMPAs for further assessment. The distances have been measured from the closest point on the site to the edge of each cable corridor.

**Table 4-1 Screening of relevant NCMPAs**

Site Name & Code	Primary and qualifying features	Cable Corridor	Distance (km)	Potential pressure	Potential pressure-receptor pathway for adverse effect	Screening decision
Sea of the Hebrides NCMPA	<b>Article 4 Schedule 2 Protected Features (Mobile Species)</b> ▪ Minke whale ( <i>Balaenoptera acutorostrata</i> )	Cable 2.13	0.0	Underwater noise changes	Minke whale belong to the Celtic and Greater North Sea (JNCC, 2015) Management Unit (MU) and are likely to range across it.  Screened in for further assessment as underwater noise generated by installation activities could lead to disturbance of minke whale in the vicinity of such noise within the MU.  Potential to hinder conservation objectives, Stage 1 Assessment required.	SCREENED IN
		Cable 2.15	0.0			
		Cable 2.16	0.0			
		Cable 2.14	40.9			
		Cable 2.13	0.0	Changes in supporting habitat type and prey availability	Minke whale belong to the Celtic and Greater North Sea (JNCC, 2015) Management Unit (MU) and are likely to range across it.  Cable installation activities in these cable corridors will in total disturb an area of approximately 0.14km <sup>2</sup> , which is 0.002% of the NCMPA's marine area. Temporary disturbance to such a small area of the protected site will not result in any significant adverse effects to supporting habitat and prey availability.  No potential to hinder conservation objectives, Stage 1 Assessment not required.	SCREENED OUT
		Cable 2.15	0.0			
		Cable 2.16	0.0			
		Cable 2.14	40.9			
	<b>Article 4 Schedule 2 Protected Features (Mobile Species)</b> ▪ Basking shark ( <i>Cetorhinus maximus</i> )	Cable 2.13	0.0	Changes in supporting habitat type and prey availability	Cable installation activities in these cable corridors will disturb an area of approximately 0.14km <sup>2</sup> , which is 0.002% of the NCMPA's marine area. Temporary disturbance to such a small area of the protected site will not result in any significant adverse effects to supporting habitat and prey availability.  No potential to hinder conservation objectives, Stage 1 Assessment not required.	SCREENED OUT
		Cable 2.15	0.0			
		Cable 2.16	0.0			
		Cable 2.14	40.9		No potential pressure/receptor pathway exists as cable routes are not found within the site.	SCREENED OUT

Site Name & Code	Primary and qualifying features	Cable Corridor	Distance (km)	Potential pressure	Potential pressure-receptor pathway for adverse effect	Screening decision
					No potential to hinder conservation objectives, Stage 1 Assessment not required.	
	<b>Article 4 Schedule 2 Protected Features (Large scale feature)</b> ▪ Fronts	Cable 2.13	0.0	No pressure-receptor pathway identified	The proposed installation activities will not interact with this feature.	SCREENED OUT
		Cable 2.15	0.0			
		Cable 2.16	0.0			
		Cable 2.14	40.9			
	<b>Article 4 Schedule 2 Protected Features (Geomorphological)</b> ▪ Marine Geomorphology of the Scottish Shelf Seabed.	Cable 2.13	0.0	Physical change to another seabed type Penetration and/or disturbance of the substrate below the surface of the seabed Abrasion/disturbance of the substrate on the surface of the seabed Siltation rate changes (including smothering)	As cable stabilisation measures may be utilised within the NCMPA site boundary, there may be small, localised changes to the physical characteristics of the seabed. Siltation rate changes are likely to occur within 100m of the scheduled works.  Potential to hinder conservation objectives, Stage 1 Assessment required.	SCREENED IN
		Cable 2.15	0.0			
		Cable 2.16	0.0			
		Cable 2.14	40.9	No pressure-receptor pathway identified	No pressure-receptor pathway identified due to the distance of these cable corridors to the NCMPA. The proposed installation activities will not interact with this feature.  No potential to hinder conservation objectives, Stage 1 Assessment not required.	SCREENED OUT
Small Isles NCMPA	<b>Article 4 Schedule 2 Protected Features (Habitat)</b> ▪ Burrowed mud ▪ Circalittoral sand and mud communities ▪ Horse mussel beds	Cable 2.13	2.3	No pressure-receptor pathway identified	No pressure-receptor pathway identified due to the distance of these cable corridors to the NCMPA. The proposed installation activities will not interact with these features.  No potential to hinder conservation objectives, Stage 1 Assessment not required.	SCREENED OUT

Site Name & Code	Primary and qualifying features	Cable Corridor	Distance (km)	Potential pressure	Potential pressure-receptor pathway for adverse effect	Screening decision
	<ul style="list-style-type: none"> <li>Northern sea fan and sponge communities</li> </ul> <b>Article 4 Schedule 2 Protected Features (Low or limited mobility species)</b> <ul style="list-style-type: none"> <li>Fan mussel aggregations (<i>Atrina fragilis</i>)</li> <li>White cluster anemones (<i>Parazoanthus anguicomus</i>)</li> <li>Northern feather star (<i>Leptometra celtica</i>) aggregations on mixed substrata</li> </ul>	Cable 2.15	65.4			
		Cable 2.14	65.8			
		Cable 2.16	69.8			
	<b>Article 4 Schedule 2 Protected Features (Large scale feature)</b> <ul style="list-style-type: none"> <li>Shelf Deep</li> </ul>					
	<b>Article 4 Schedule 2 Protected Features (Geomorphological)</b> <ul style="list-style-type: none"> <li>Quaternary of Scotland</li> </ul>			Visual (and above water noise) disturbance	Screened in for further assessment as black guillemot are considered to be sensitive to visual and above water noise disturbance (JNCC, 2017) and the cable corridor is within the species mean max foraging range (4.8km) (Woodward et al., 2019).  Potential to hinder conservation objectives, Stage 1 Assessment required.	SCREENED IN
		Cable 2.13	2.3			
		Cable 2.15	65.4			
		Cable 2.14	65.8			
		Cable 2.16	69.8			
		Cable 2.14	2.8			

Site Name & Code	Primary and qualifying features	Cable Corridor	Distance (km)	Potential pressure	Potential pressure-receptor pathway for adverse effect	Screening decision
Loch Sunart to the Sound of Jura NCMPA	<b>Article 4 Schedule 2 Protected Features (Mobile Species) Breeding birds</b> ▪ Flapper skate ( <i>Dipturus intermedius</i> )	Cable 2.13	22.9	No pressure receptor pathway identified	No pressure-receptor pathway identified. The proposed installation activities will not interact with this feature. No potential to hinder conservation objectives, Stage 1 Assessment not required.	SCREENED OUT
		Cable 2.16	25.2			
		Cable 2.15	33.3			
	<b>Article 4 Schedule 2 Protected Features (Geomorphological)</b> ▪ Quaternary of Scotland	Cable 2.14	2.8	No pressure-receptor pathway identified	No pressure-receptor pathway identified. The proposed installation activities will not interact with this feature. No potential to hinder conservation objectives, Stage 1 Assessment not required.	SCREENED OUT
		Cable 2.13	22.9			
		Cable 2.16	25.2			
		Cable 2.15	33.3			

The Stage 1 screening identified two NCMPAs which have the potential for likely significant effect and therefore require further assessment:

- Sea of the Hebrides NCMPA,
- Small Isles NCMPA.

## 4.2 Sea of the Hebrides NCMPA

Protected Features Screened In: Marine Geomorphology of the Scottish Shelf Seabed.

### 4.2.1 Conservation objectives

- The conservation objectives of the Sea of the Hebrides NCMPA are that the protected features—
  - a. so far as already in favourable condition, remain in such condition; and
  - b. so far as not already in favourable condition, be brought into such condition, and remain in such condition.
- “Favourable condition”, with respect to a mobile species of marine fauna, means that—
  - c. the species is conserved or, where relevant, recovered to include the continued access by the species to resources provided by the Sea of the Hebrides MPA for, but not restricted to, feeding, courtship, spawning or use as nursery grounds;
  - d. the extent and distribution of any supporting feature upon which the species is dependent is conserved or, where relevant, recovered; and
  - e. the structure and function of any supporting feature, including any associated processes supporting the species within the Sea of the Hebrides MPA, is such as to ensure that the protected feature is in a condition which is healthy and not deteriorating.
- “Favourable condition”, with respect to a feature of geomorphological interest, means that—
  - f. its extent, component elements and integrity are maintained;
  - g. its structure and functioning are unimpaired; and
  - h. its surface remains sufficiently unobscured for the purposes of determining whether the criteria in paragraphs (a) and (b) are satisfied.
- For the purpose of determining whether a feature of geomorphological interest is sufficiently unobscured, any obscuring of that feature entirely by natural processes is to be disregarded.
- For the purpose of determining whether a protected feature is in favourable condition, any alteration to that feature brought about entirely by natural processes is to be disregarded.

### 4.2.2 Assessment against conservation objectives (including feature assessment)

#### 4.2.2.1 Site description

The Sea of the Hebrides NCMPA spans a large area off the west coast of Scotland, covering approximately 10,039km<sup>2</sup> (NatureScot, 2020). The MPA covers the Sea of the Hebrides between the east coast of the Outer Hebrides and the west coasts of Skye, Mull and the Ardnamurchan Peninsula. The cool, nutrient-rich waters of the site mix with shallow warmer water to generate an area of high productivity, known as a front. This results in a concentration of nutrients and plankton, which in turn attracts a range of predators in the summer months, including basking shark and minke whales which the site is designated for. The size of the NCMPA is due to the mobile nature of basking shark and minke whale, and to encompass the large-scale fronts feature. The site also protects the Marine Geomorphology of the Scottish Shelf Seabed geodiversity feature, which is responsible for generating



carbonate-rich sediments which supply the carbonate sands of the coastal machair (NatureScot, 2020).

Within the NCMPA, the Inner Hebrides Carbonate Production Area encompasses the shelf areas around the islands of Coll and Tiree and on the west coast of Mull. The outer/seaward extent of the feature is closely related to the 50 m depth contour and is characterised by sands and gravels with very high carbonate content. Studies show that the carbonate sand and gravels are transported shorewards by nearbed currents produced by wind and waves in storm events (Light and Wilson, 1998). The extent of these sediments may be sensitive to large scale changes in water flow, wave exposure and activities involving the physical removal of sediments and subsurface abrasion/penetration of the seabed (NatureScot 2019).

Cable Corridor 2.15 Iona to Mull is entirely within the NCMPA, and Cable Corridor 2.13 Eigg to Mainland and Cable Corridor 2.16 Colonsay to Mull are partially within the NCMPA on the eastern and southern edges of the site, respectively. As installation activities for the Project are located within the NCMPA, there is potential for interaction between the Interest features of the site and the Project activities.

#### 4.2.2.2 Underwater noise changes

A summary of the qualifying features and cable corridors screened in for underwater noise changes in the Sea of Hebrides NCMPA is provided in Table 4-2.

**Table 4-2 Summary of LSE for underwater noise changes of the qualifying features of Sea of Hebrides NCMPA**

Feature	Cable 2.13	Cable 2.14	Cable 2.15	Cable 2.16
Minke Whale				

Note: Dark blue cells denote where cable corridors are within the NCMPA.

Minke whale are most frequently recorded in the north-west along the coast of the Outer Hebrides, as well as around the Small Isles (NatureScot, 2020), in the summer months, when they utilise the fronts for feeding. This is an important period for minke whale, as they must build up sufficient energy reserves during summer to enable them to migrate to their winter breeding grounds in the southern hemisphere (NatureScot, 2012). Underwater noise generated during the installation activities could therefore disturb feeding minke whale, which could in turn impact survival and reproduction.

The 2016 SCANS III survey provided an estimate of 700 minke whales within the blocks that overlap with the MPA (the West Coast of Scotland) (Hammond et al., 2017). This species is considered "Threatened and/or Declining" in Scotland (NatureScot, 2020).

Minke whale hearing lies within the low-frequency range of 7 Hz to 35 kHz (with peak sensitivity around 100 – 200 Hz).

Sound generated by USBL devices is used to determine the position of subsea equipment during cable installation. The system operates by emitting a low frequency acoustic pulse between the transponder on the vessel and the transducer on the subsea unit. The vessel mounted system to be used throughout cable installation activities is the HiPAP502. This transmits a directional beam, with a source level of SPL 190dB re 1µPa @1m (assumed to be 0-pk) in the frequency range 21-31 kHz, with an effective range of 2000m. Such frequencies will be audible to nearby minke whale, and thus could potentially disturb animals.

Calculations presented in the Inner Hebrides geographical area European Protected Species (EPS) Assessment (Document: P2308\_R5285\_Rev0) concluded auditory injury will not occur in minke whale from the use of the USBL. Calculations assumed 24 hours continuous exposure to impulsive sound and used the injury criteria as given in NMFS (2018), for a permanent threshold shift or temporary

threshold shift in hearing. However, the highly precautionary calculations identified that disturbance may occur within 1.1km of the USBL.

The calculations presented in the Inner Hebrides EPS Assessment were highly precautionary. NMFS (2018) acknowledge that criteria for disturbance (termed effective silence in the case of NMFS 2018), are not representative of the effects on animals within their natural environment but are based on a limited number of studies of captive individuals and do not take into account habituation to ambient sound. Within Inner Hebrides waters, ambient sound is dominated by shipping noise (Richards et al 2007), which is of low frequency, in addition to fishing and military operations. These ambient sound sources are likely to reduce the effects of disturbance from the USBL.

Distribution data for minke whale, which was collected as part of the Data Confidence Assessment for the NCMPA (NatureScot, 2020), indicates that minke whale do not occur within Cable Corridor 2.15 Iona to Mull and Cable Corridor 2.16 Colonsay to Mull and are found in low densities (0.2 to 0.5 individuals per km<sup>2</sup>) within Cable Corridor 2.14 Mainland to Lismore (NatureScot, 2020). This is potentially due to the fronts that create the rich feeding grounds primarily being located in the southwest of the NCMPA. Therefore, there is a lower likelihood that minke whale will be present within the cable corridors during installation activities, and if present they will be there in low densities.

Cable installation activities will be a continuous, transient but temporary occurrence (approximately 5 to 14 days per cable corridor). As the installation activities will move at a maximum speed of 2 knots, the highly precautionary area of disturbance will move with the vessel and the effects will be brief in any one place and localised to the installation activity. As such, noise and associated temporary disturbance from the cable laying activities themselves will not result in a significant adverse effect on nearby individuals from the NCMPA.

It is therefore concluded that any temporary localised effect will be brief, minimal and localised and will not result in any likely significant effects on minke whale. The extent and distribution of the species will not be significantly impacted, and the structure, functioning and integrity of the protected sites will be maintained.

#### 4.2.2.3 Physical change to another seabed type

The pressure 'physical change (to another seabed type)' can lead to a permanent change in substrate type which in turn would lead to the habitat or biotope being re-classified (MarLIN 2021). Activities considered by the assessment that cause the pressure include surface laying of the cable (including integral protection) and any form of external cable protection / stabilisation that alters the seabed. For example, rock bags and concrete mattresses, included as contingency cable protection / stabilisation in this application.

The cable is proposed to be buried to 1m. However, for short sections where it is not possible to bury the cable, such as in areas of hard ground or rock, the cable will be surface laid using heavier armoured cable as protection. Articulated pipe may also be used as additional integral protection to prevent abrasion to the cable. Any sections of the cable surface laid may be pinned or clamped to the seabed to avoid any movement of the cable while minimising the footprint. The addition of discretely placed rock bags may be required at approximately 50m intervals (worst case) for certain sections of the cable to provide stability. Concrete mattresses are only a potential requirement at cable crossings. As there are no power cable or pipeline crossings within the Inner Hebrides cable corridors, concrete mattresses are unlikely to be used for this cable corridor, within the Sea of Hebrides NCMPA. Physical change to another habitat will only occur within the footprint of the cable and any cable protection measures, if used.

The Marine Geomorphology of the Scottish Shelf Seabed – Inner Hebrides Carbonate Production Area comprises shelves, banks and sand wave fields composed of carbonate rich gravels and sands. These

components are known to be sensitive to a range of pressures. These features have a medium sensitivity to the physical change of the sediment of the feature (NatureScot 2019).

This geodiversity feature will therefore have medium sensitivity to physical change to another habitat from activities such as placement of rock bags and concrete mattresses. However, the worst-case footprint of these activities within the NCMPA will be up to 280m<sup>2</sup> (40 rock bags) and 162m<sup>2</sup> (9 mattresses), as described in the Project Description (Document Reference: P2308\_R5368\_ Rev0 MEA\_Chap 2). The north of the Inner Hebrides Carbonate Production Area is within the south of the Sea of Hebrides NCMPA. The installation activities will impact less than 0.00001% of the protected geodiversity feature within the NCMPA and is likely to be even less should cable protection measures not be required. The footprint of the activities is small in comparison to the wider extent of the feature within the NCMPA and surrounding areas.

Therefore, as only a small portion relative to the extent of the geomorphological feature will be impacted by physical change to another seabed type, there will be no significant effects to the Marine geomorphology of the Scottish Shelf Seabed within The Sea of Hebrides NCMPA and the structure, functioning and integrity of the protected site will be maintained.

#### 4.2.2.4 Penetration and/or disturbance of the substrate below the surface of the seabed'

Activities considered by the assessment that cause the pressure 'penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion' include cable route preparation such as the pre-lay grapnel run (PLGR), and cable burial. These activities lead to limited or no loss of substrate from the system.

Prior to installation, a PLGR will be undertaken along the proposed cable corridors. A typical PLGR can penetrate and/or disturb up to 40cm depth of the seabed in sediment habitats (depending on the sediment composition). As the PLGR is dragged through the surface sediments of the seabed it will pick up obstructions such as wires and derelict fishing gear and disturb the sediments. The sediments along the cable corridors are primarily sands and gravels, which although disturbed will be moved by natural sediment transport and naturally backfill any depressions caused by the PLGR. Ploughing and jetting ROV will be undertaken during cable burial in sediment habitats. These will penetrate up to 1m depth and will leave the trench backfilled.

Penetration and/or disturbance of the substrate below the surface of the seabed will only occur within the footprint of the PLGR, ploughing and jetting ROV activities, which will disturb a 2.6m wide footprint along the length of the cable corridor as described in the Project Description (Document Reference: P2308\_R5368\_ Rev0 MEA\_Chap 2). There will be no impact to the geomorphology outside of the cable corridors.

The sensitivity of the geomorphology to penetration and/or disturbance of the substrate below the surface of the seabed depends on the features and habitats present. According to the Scottish Feature Activity Sensitivity Tool (FEAST), this feature includes five sub features, bank (unknown substrate), longitudinal bedform field, sand ribbon field, sand wave field (shelf), sandbank, and sediment wave field (shelf), all of which have low sensitivity to penetration and or disturbance of the substrate below the surface (Marine Scotland 2021). The north of the Inner Hebrides Carbonate Production Area is within the south of the Sea of Hebrides NCMPA. The installation activities will impact less than 0.0005% of the protected geodiversity feature within the NCMPA and is likely to be even less should contingency cable protection measures not be required. The footprint of the activities is small in comparison to the wider extent of the feature within the NCMPA and surrounding areas.

Given the relatively small extent of the feature that will be effected by penetration and/or disturbance of the substrate below the surface of the seabed', and that the sub features have low sensitivity to this pressure, there will be no significant effect to the Marine geomorphology of the Scottish Shelf Seabed within the Sea of Hebrides NCMPA. The structure, functioning and integrity of the protected site will therefore be maintained.

#### 4.2.2.5 Abrasion/disturbance of the substrate on the surface of the seabed

Activities considered by the assessment that cause the pressure 'abrasion/disturbance at the surface of the substratum' include activities such as the pre-lay grapnel run, surface cable laying and cable burial. These activities lead to limited or no loss of substrate from the system.

Prior to installation a PLGR will remove any debris along the cable route. The PLGR will be used within the footprint of the plough. During installation, a plough will be towed along the cable corridors, which will simultaneously lay and bury the cable. The plough is towed across the seabed on skids and the plough share separates the sediment to bury the cable to the required burial depth. This action is in contact with the surface of the seabed and will cause a localised area of abrasion during the installation process. In sections of hard seabed, such as reef habitats, where burial cannot be achieved, the cable may be surface laid and as such, only the seabed within the direct footprint of the cable (diameter up to 15cm – worst case) will be disturbed. The extent of the disturbance will be confined to a small and linear area.

The sensitivity of the geomorphology to abrasion/disturbance of the substrate on the surface of the seabed depends on the features present. According to the Scottish FEAST tool, this feature includes five sub features, bank (unknown substrate), longitudinal bedform field, sand ribbon field, sand wave field (shelf), sandbank, and sediment wave field (shelf), all of which are not sensitive to surface abrasion.

Abrasion/disturbance of the substrate on the surface of the seabed will only occur within the footprint of the PLGR, ploughing and jetting ROV activities, which is 2.6m wide along the length of the cable route. There will be no impacts from these activities, and therefore no adverse effects to the geomorphology, outside of the cable corridors. The north of the Inner Hebrides Carbonate Production Area is within the south of the Sea of Hebrides NCMPA. The area affected will be up to 0.14km<sup>2</sup> (for the combined cable length within the NCMPA of 52.8km), as described in the Project Description (Document Reference: P2308\_R5368\_Rev0 MEA\_Chap 2). The installation activities will impact less than 0.002% of the protected geodiversity feature within the NCMPA. The footprint of the activities is small in comparison to the wider extent of the feature within the NCMPA and surrounding areas.

Given the relatively small extent of the feature that will be affected by abrasion/disturbance of the substrate on the surface of the seabed and the sub features are not sensitive to this pressure, there will be no significant effects to the Marine geomorphology of the Scottish Shelf Seabed within Sea of Hebrides NCMPA. The structure, functioning and integrity of the protected site will therefore be maintained.

#### 4.2.2.6 Siltation rate changes (including smothering)

The marine cable installation will cause resuspension of sediments from the seabed into the water column. Jet trenching will cause a greater level of sediment suspension compared to the use of ploughing equipment. However, this is not proposed other than for small sections of the cables in the near shore area or sections of the cable that cannot be plough buried at the time of installation. The impact is a small, localised and temporary increase in turbidity which could lead to sediment deposition within 100m of the cable corridors.

The pressure siltation rate changes including smothering is classified as 'not assessed' in FEAST as it is not relevant to geodiversity features (Marine Scotland, 2013). The pressure cannot affect the structure, function or integrity of the feature.

There will be no significant effects on the Marine geomorphology of the Scottish Shelf Seabed within Sea of Hebrides NCMPA and the structure, functioning and integrity of the protected site will be maintained.

### 4.2.3 Project specific mitigation

None specified.

### 4.2.4 Conclusion

As the protected feature minke whale are only found in low densities within the cable corridors, will only be subject to temporary and localised disturbance and will not be injured by underwater noise generated during the installation activities, there will be no significant impact to this feature. There will be no significant impact to the Marine Geomorphology of the Scottish Shelf Seabed. The project will not hinder the achievement of the management objectives for the NCMPA.

## 4.3 Small Isles NCMPA

Protected Features Screened In: Black guillemot

### 4.3.1 Conservation objectives

- The conservation objectives of the Small Isles MPA are that the protected features—
  - a. so far as already in favourable condition, remain in such condition;
  - b. so far as not already in favourable condition, be brought into such condition, and remain in such condition.
- “Favourable condition”, with respect to a mobile species of marine fauna, means that—
  - c. the species is conserved or, where relevant, recovered to include the continued access by the species to resources provided by the MPA for, but not restricted to, feeding, courtship, spawning or use as nursery grounds;
  - d. the extent and distribution of any supporting features upon which the species is dependent is conserved or, where relevant, recovered;
  - e. the structure and function of any supporting feature, including any associated processes supporting the species within the MPA, is such as to ensure that the protected feature is in a condition which is healthy and not deteriorating.

### 4.3.2 Assessment against conservation objectives (including feature assessment)

#### 4.3.2.1 Site description

The Small Isles NCMPA encompasses the islands Rum and Canna in the Inner Seas off the coast of West Scotland, spanning across a total area of 711.86 km<sup>2</sup>. The site protects a diverse range of protected features, including a range of seabed habitats which have no known equivalents with the same extent and quality. The site also protects black guillemot, which breed along the rocky coastlines of Rum and Canna. The closest installation activities are those within Cable Corridor 2.13 Eigg to Mainland, which is located 2.27km southeast of the Small Isles NCMPA.

#### 4.3.2.2 Visual (and above water noise) disturbance

A summary of the qualifying features and cable corridors screened in for visual (and above water noise) disturbance in Small Isles NCMPA is provided in Table 4-3.

**Table 4-3 Summary of LSE for visual (and above water noise) disturbance of the qualifying features of Small Isles NCMPA**

Feature	Cable 2.13	Cable 2.14	Cable 2.15	Cable 2.16
Black guillemot				



Note: Blue cells denote cable corridors where screening has identified a potential for LSE.

Cable Corridor 2.13 Eigg to Mainland is approximately 2.3km south-east of the NCMPA, between the isles of Rum and Eigg. Installation activities within Cable Corridor 2.13 Eigg to Mainland therefore have potential to disturb black guillemot from the NCMPA which may be feeding within the vicinity of the cable corridor. Due to the foraging range of black guillemot (4.8km), there is no potential for disturbance to birds from the site foraging within the other cable corridors, which are at least 65.4km (for Cable Corridor 2.15 Iona to Mull) from the NCMPA. As the cable corridors are more than 2km from the NCMPA, there will be no impact to nesting birds within the NCMPA.

The last population estimate for the site (recorded in 2000) indicated that the site supports approximately 850 breeding black guillemot, which was equivalent to approximately 2.2% of the GB population (NatureScot, 2013). Surveys undertaken in 2013 suggest that the population had increased to 1,227 breeding birds (NatureScot, 2013). Black guillemot utilise the NCMPA for breeding and are present year-round during their moulting and overwintering periods. They are most sensitive to disturbance during the breeding months from April to August (Woodward et al., 2019), when disturbance could impact nesting success and chick survival.

A study conducted by Bradbury (2014) classed black guillemot as a species which are sensitive to disturbance. Unlike other Auk species that typically feed offshore, black guillemot typically feed close to their breeding grounds and rarely travel long distances from such locations (SNH, 2014). Whilst their mean-max foraging range is 4.8km, they typically only forage up to several hundred meters from the colony when breeding (Marine Scotland, 2021). Black guillemot are predominantly found on the isles of Rum, Canna and the south of Skye, which are at least approximately 4km from the closest cable corridor (Cable Corridor 2.13 Eigg to Mainland). Therefore, during the sensitive breeding season it is unlikely that black guillemot from the NCMPA will be found within Cable Corridor 2.13 Eigg to Mainland.

Additionally, installation vessels will be slow moving (approximately 2km/hr), slower than walking speed (generally assumed to be 5km/hr), and at times stationary. At such slow speeds, the vessels are effectively stationary in terms of bird displacement. Studies have shown that slow moving vessels cause little disturbance to birds and birds may habituate to frequent and relatively benign events and noises (Natural England and Suffolk Coast and Heaths, 2012). Whilst black guillemot are sensitive to visual disturbance, negligible disturbance has been shown to occur by vessels moving at less than 2km/h (Burger et al., 2019). It is therefore concluded that any temporary disturbance will be brief, minimal and localised and will not result in any likely significant effects on black guillemot. The extent and distribution of black guillemot will not be significantly affected, and the structure, functioning and integrity of the protected sites will be maintained.

#### **4.3.3 Project specific mitigation**

None specified.

#### **4.3.4 Conclusion**

Visual (and above water noise) disturbance caused by the installation works within Cable Corridor 2.13 Eigg to Mainland will not disturb the qualifying species black guillemot within Small Isles NCMPA. The distribution of the species within the site and their population as a viable component of the NCMPA, will be maintained.

In conclusion, there will be no adverse effect on the feature of the site and the project will not hinder the achievement of the management objectives for the NCMPA.

## 5. SSSI ASSESSMENT

### 5.1 Introduction

Chapter 1, Section 3 of the Nature Conservation (Scotland) Act 2004 provides for the notification and confirmation of SSSIs, by the country conservation body in Scotland (NatureScot). These sites are identified for their flora, fauna, geological or physiographical features. Only SSSI which are at the landing point have been assessed, unless there is a seal haul-out in close proximity.

The local planning authority, all landowners and occupiers, and the Secretary of State must be notified of any activities or works within a SSSI. This Act also contains measures for the protection and management of SSSIs, with attention to the integrity of the site and conservation objectives.

The notified bodies have a specified time-period within which representations and objections may be made. The country conservation body must consider these responses and may withdraw or confirm the notification. The assessment of potential effects to SSSIs in this report will inform the notification process as part of the Marine licence application submission to MS-LOT.

Table 5-1 below presents the results of the screening of the identified relevant SSSIs for further assessment. The distances have been measured from the closest point on the site to the edge of each cable corridor.

Table 5-1 below concluded that there is no potential for likely significant effect on the habitats within the SSSIs. There is a potential pressure receptor pathway between the notifying feature 'chough' and installation activities within Cable Corridor 2.16 Colonsay to Mull. Chough is also a Primary Feature of the North Colonsay and Western Cliffs SPA, which encompasses the North Colonsay SSSI. The assessment of potential significant effect is presented in Section 6.9 and concluded that a Likely significant effect cannot be ruled out. Project specific mitigation has therefore been proposed which is directly applicable to the North Colonsay SSSI, as follows:

- M1 – Following licence submission and confirmation by NatureScot Ornithology expert on the use of Cable Corridor 2.16 Colonsay to Mull (Colonsay landing point) by breeding chough, appropriate local mitigation will be agreed.

Implementation of the mitigation will ensure that the Project will not have any adverse effects on the site integrity of the SSSIs.

**Table 5-1 Screening relevant SSSIs for assessment**

Site Name & NatureScot Site Code	Primary and qualifying features	Cable Corridor	Distance (km)	Potential pressure	Potential pressure-receptor pathway for adverse effect on site integrity	Screening decision
North Colonsay SSSI (1229)	<b>Notified natural features</b> <ul style="list-style-type: none"> <li>Lowland dry heath</li> <li>Lowland wet heath</li> <li>Machair</li> <li>Sand dune</li> <li>Upland oak woodland</li> <li>Vascular plant assemblage</li> </ul>	Cable 2.16	0.00	No pressure-receptor pathway identified.	None of these habitats are in the vicinity of the proposed BMH or cable route. The cable will route through poor-quality dune grassland, intertidal sand and poor semi-improved grassland which have low ecological significance (Phase 1 habitat report available on request). There will be no impact to these features from the installation activities. No potential for adverse effect on site integrity, no further assessment required.	SCREENED OUT
	Chough (breeding)			Visual (and above water noise) disturbance	Screened in for further assessment as Cable Corridor 2.16 Colonsay to Mull is within the SSSI. Disturbance to individuals nesting within the site could occur from installation activities. As the SSSI lies within the North Colonsay and Western Cliffs SPA the assessment of this pressure-receptor pathway is provided in the HRA.	SCREENED IN – Refer to North Colonsay and Western Cliffs SPA for assessment (Section 6.9)



## 6. HRA STAGE 2 - INFORMATION TO INFORM APPROPRIATE ASSESSMENT

### 6.1 Introduction

The Stage 1 Screening documented in Section 3, concluded that there is the potential for likely significant effects on the following European sites and that an AA is required:

- Inner Hebrides and the Minches SAC.
- Eileanan agus Sgeiran Lios mor SAC.
- Treshnish Isles SAC.
- Cnuic agus Cladach Mhuile SPA.
- North Colonsay and Western Cliffs SPA.
- Rum SPA.

To inform the AA the Applicant must provide data and information on the project and on the European site. An analysis of potential effects on the site must be completed and presented as 'Information to Inform Appropriate Assessment'. This is a more detailed ecological assessment of the proposed activities, taking into consideration the conservation objectives for the European site and its overall integrity. It looks to answer two key questions:

- What are the likely effects of the proposed activity?
- How quickly could the Qualifying Feature recover from the effect, if at all?

The duty to undertake AA, having considered the 'Information to Inform AA', and to ensure that the stringent evaluation and decision-making procedure is applied correctly, lies with the competent authority, which for the Proposed Project is MS-LOT. The AA will be a focused and detailed impact assessment of the implications of the Project, alone and in combination with other plans and projects, on the integrity of a European site in view of its conservation objectives.

If the assessment concludes that the plan or project will adversely affect the integrity of a European site, then the process must proceed to Stage 3, of the HRA process or the Project should be abandoned.

Any mitigation measures necessary to avoid, reduce or offset negative effects should be proposed at this stage (Stage 2).

### 6.2 Objectives and Structure of this Information to Inform AA

Screening identified six European sites where it could not be ruled out that the Project activities will not result in LSE and therefore required Stage 2 AA. This section provides information for the competent authority to undertake the AA.

The six European sites were screened in for the following pressure – receptor pathways:

- Visual (and above water noise) disturbance.
- Underwater noise changes.

Section 6.3 provides details on each of the two pressure-receptor pathways and includes the assessment of in-combination effects.

Some common baseline information needed for each of the European site assessments has been provided first in Section 6.4 and then the assessment of each site has been presented in Sections 6.5 – 6.10.

## 6.3 Pressure-receptor Pathways for European Sites Requiring AA

### 6.3.1 Visual (and above water noise) disturbance

#### 6.3.1.1 Birds

The HRA screening identified that there is the potential for a LSE on bird qualifying features of three SPAs from the pressure 'Visual (and above water noise) disturbance'.

The most vulnerable birds to disturbance are those within the zone of influence of the installation operations, as described in Table 2-1 (Section 2). Disturbance is predicted to be limited to that initiated by the movement of vessels or by noise e.g. flushing, typically into flight or by diving. The level of noise associated with cable installation activities is low with the presence of vessels the main cause of disturbance. Birds may take evasive action, but a single disturbance event does not have any immediate effect on the survival or productivity of an individual bird. Repeated disturbance, or disturbance over an extended period, can affect survival and productivity (Valente and Fischer, 2011).

The extent to which a seabird responds to disturbance is dependent upon factors including the period of breeding cycle during which disturbance occurs; duration, type and intensity of the disturbance; presence of opportunistic predators; and the degree of habituation with the disturbance (Showler et al., 2010). Some seabirds are more resilient to disturbance than others. The breeding/summer season is typically defined as 1st April to 30th September.

Prolonged disturbance at the nest site could result in impaired breeding, disruption to incubation, increased nest failures due to predation and nest abandonment (Valente and Fischer, 2011). These factors could affect the demographic characteristics of the population. Repeated or prolonged disturbance within breeding bird foraging zones may result in reduced opportunities for catching prey items, nesting success and chick production.

The Project will typically involve one main installation lay vessel and one ancillary support vessel. Installation will take approximately 25 to 31 days per route with the longer durations for Cable Corridor 2.14 Mainland to Lismore and Cable Corridor 2.15 Iona to Mull. This broadly reflects all activities associated with the cable corridor, vessel activity will be for a shorter duration within this period (approximately 5 to 14 days).

Therefore, during installation there is potential for temporary visual and above water noise disturbance from the presence of the vessels which may interrupt the feeding, breeding or nesting activities of birds from the screened in SPAs.

### 6.3.2 Underwater noise changes

#### 6.3.2.1 Seals

The HRA screening identified that there is the potential for a LSE on the qualifying feature 'grey seal' of the Treshnish Isles SAC and 'harbour seal' of the Eileanan agus Sgeiran Lios mor SAC from the pressure 'Underwater noise changes' from the USBL device used to position the ROV to conduct touch down monitoring.

Noise will be temporarily generated by the USBL during the cable installation. The vessel mounted system to be used throughout cable installation activities is the HiPAP502. This transmits a directional beam, with a source level of SPL 190dB re 1µPa @1m (assumed to be 0-pk) in the frequency range 21-

31 kHz, with an effective range of 2000m<sup>1</sup>. There will be no ongoing effect of noise from the cable once installed.

Underwater noise changes generated by the USBL may pose a risk to the seal population. Such noise can impact the species in two ways:

- Injury - physiological damage to an individuals' auditory or other internal organs; and
- Disturbance – either temporary or continuous. While this factor does not result in injury, disruptions to behavioural patterns such as migration, nursing, breeding, foraging, socialising and/or sheltering may occur.

Acute to significant long-term consequences to seal populations can occur, for example by avoidance of important habitats, interference with vocalisations and auditory damage (Southall *et al.*, 2019; Tyack, 2008). Male seals have been shown to utilise a repertoire of underwater vocalisations during mating season to attract a mate (Ruser *et al.*, 2014, Van Parijs and Kovacs, 2011), and to defend territories (Matthews *et al.*, 2017).

Harbour seals use low frequency rumblings from 250Hz to 1.4kHz (Van Parijs, Janik and Thompson, 2000), whereas grey seal vocalisations typically range between 100Hz and 3kHz (Asselin, Hammill and Barrette, 1993), with both species more sensitive to continuous noise than impulsive noise (Baltic Marine Environment Protection Commission, 2016). Therefore, there is potential for significant noise disturbance during mating to affect seal breeding success, as seals rely on these vocalisations (Baltic Marine Environment Protection Commission, 2016). Similar vocalisations have been recorded in harbour seal outside of breeding seasons, but the behavioural significance of these vocalisations is unknown (Andersson *et al.*, 2015).

If frequencies of the sound produced fall outside the predicted auditory bandwidth for a species, then disturbance is unlikely. Sufficiently high noise sources, however, can still cause damage to an individuals' auditory or other internal organs. Both grey seal and harbour seal are thought to possess a typical hearing range of 50 Hz to 86 kHz (NMFS, 2018). The frequencies generated by the USBL are within the auditory range of harbour and grey seal.

To determine the potential impact of noise generated by the USBL on seal, the sound levels that will be produced have been compared to the available estimated thresholds for injury and disturbance in seal. JNCC guidance (JNCC, 2020) recommends using the injury criteria proposed by Southall *et al.* (Southall *et al.*, 2019) based on a combination of linear (un-weighted) peak pressure levels and mammal hearing weighted (M-weighted) sound exposure levels (SEL). The highly precautionary assessment identifies that there is potential for disturbance to marine mammals (if sensitive) up to 1.1km from the sound source (NMFS, 2018).

It should be noted that the disturbance range is based on the assumption of an animal staying static within that range continuously for a period of 24 hours. This is a highly unlikely scenario and therefore these ranges represent an extreme worst-case assessment.

Repeated or prolonged disturbance in the vicinity of seal haul out sites and foraging areas may result in reduced opportunities for catching prey items. Prolonged underwater noise disturbance could result in reduced mating and breeding success, which could affect the demographic characteristics of the population.

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<sup>1</sup> It should be noted, the transmitter characteristics are within the range of echo sounders used on a variety of vessels (including pleasure craft, yachts, fishing vessels and other marine craft). Such echo sounders used by other vessels common across the area operate in the frequency range 12-400kHz, with signal strengths up to 230dB re 1µPa @1m (Risch *et al.* 2017).

### 6.3.2.2 Harbour Porpoise

The HRA screening identified that there is the potential for an LSE on the qualifying feature 'harbour porpoise' of the Inner Hebrides and the Minches SAC from the pressure 'Underwater noise changes' from the USBL device used to position the ROV to conduct touch down monitoring.

Noise will be temporarily generated by the USBL during the cable installation. The vessel mounted system to be used throughout cable installation activities is the HiPAP502. This transmits a directional beam, with a source level of SPL 190dB re 1µPa @1m (assumed to be 0-pk) in the frequency range 21-31 kHz, with an effective range of 2000m<sup>1</sup>. There will be no ongoing effect of noise from the cable once installed.

Underwater noise changes generated by the USBL may pose a risk to the harbour porpoise population. Such noise can impact the species in two ways:

- Injury - physiological damage to an individuals' auditory or other internal organs; and
- Disturbance – either temporary or continuous. While this factor does not result in injury, disruptions to behavioural patterns such as migration, nursing, breeding, foraging, socialising and/or sheltering may occur.

Acute to significant long-term consequences to harbour porpoise populations can occur, for example by avoidance of important habitats, interference with vocalisations and auditory (Thomsen et al., 2006; Schaffeld, 2020). Harbour porpoise use or hear low frequency sounds at 1.4 – 2.5 kHz for communication, sonar-clicks (echolocation) at 110 – 140 kHz and can hear low-energy sounds at 30 – 60 kHz and broadband peak sound signals at 13 – 100 kHz (Thomsen et al., 2006).

If frequencies of the sound produced fall outside the predicted auditory bandwidth for a species, then disturbance is unlikely. Sufficiently high noise sources, however, can still cause damage to an individuals' auditory or other internal organs. Harbour porpoise as a toothed whale species typically have poor hearing frequencies below 1kHz with sensitivity frequency increasing reaching it's best between 10 and 120kHz (Dyndo et al., 2015b). The highly precautionary assessment identifies that there is potential for disturbance to marine mammals (if sensitive) up to 1.1km from the sound source (NMFS, 2018).

It should be noted that the disturbance range is based on the assumption of an animal staying static within that range continuously for a period of 24 hours. This is a highly unlikely scenario and therefore these ranges represent an extreme worst-case assessment.

The frequencies generated by the USBL are within the auditory range of harbour porpoise and therefore could interfere with their vocalisations which they rely on to communicate and this in turn could adversely affect their breeding success. The harbour porpoise mating season occurs between June and September with the birth period taking place approximately 10-11 months later, from May to August with a peak in June (Kesselring et al., 2017; Seawatch Foundation, 2021). Should the installation activities of the Inner Hebrides geographical area take place during the mating season there is potential for significant disturbance to harbour porpoise from underwater noise associated with the USBL.

Repeated or prolonged disturbance in the vicinity of harbour porpoise foraging areas may result in reduced opportunities for catching prey items. Prolonged underwater noise disturbance could result in reduced mating and breeding success, which could affect the demographic characteristics of the population.

### 6.3.3 In-combination effects

#### 6.3.3.1 Introduction

The Habitats Directive requires that plans or projects are assessed alone and in-combination with other plans or projects to determine whether a likely significant effect to European sites could occur. Only plans or projects that would increase the likelihood of significant effects should be considered.

For there to be a potential cumulative impact between the proposed installation and another project, plan, or licensed activity there must be a common pressure-receptor pathway which overlaps spatially and to a certain degree temporally.

The nature of a linear telecommunications cable project means that many potential pressures result in temporary or short-term and localised effects restricted to an area smaller than the footprint of the Project cable corridors. The search area for other projects has been defined as anything within the 5km zone of influence from the Inner Hebrides cable corridors, herein referred to as the assessment search area. Although it is recognised that certain pressures may exceed this spatial extent these have been scoped out of the assessment as they will have a negligible effect.

To identify which projects and plans are likely to interact with the proposed Project cable corridors, it was established whether a common pressure-receptor pathway exists with the Project cable installation and other types of projects and plans identified. Based on professional judgement, projects and plans were grouped into categories and then each category was assessed to determine whether it would have a pathway likely to induce similar pressures as the Project activities. Where project categories had a pressure-receptor pathway, these were considered in further detail to see whether they have:

- A common-pressure receptor pathway with the project;
- Activities, the effects of which overlap spatially with the project; and
- Activities, the effects of which overlap spatially and temporally with the project.

#### 6.3.3.2 Method

To identify the potential for cumulative impacts of the R100 Project within the Inner Hebrides geographical area the following information sources have been reviewed and plotted on to GIS (Figure 6-1, Drawing Reference No: P2308\_CUMU-002-IH-A):

- MS-LOT Public register
- National Marine Plan interactive (NMPi)
- SEAFISH Kingfisher Bulletin (Issues 27, 32, 35 dated 2021)
- UKDEAL: Oil and gas industry information;
- Oil and Gas Authority: Oil and gas industry information;
- KIS-ORCA: Marine cables information; and
- The Crown Estate Scotland Website: Offshore wind farm and marine aggregate digital data.

A review of the Marine Scotland Marine Licence Applications Public Register was undertaken in October 2021 to identify projects to be included in the assessment. Projects which had a license expiry date before January 2022 were not included as it is assumed that the licensable activity of these works will have taken place before the expiry date (any application variations with extended dates were included).

A review of the NMPi tool did not identify any other proposed projects or plans that would induce similar pressures and/or that were located within the assessment search area of the Inner Hebrides cable corridors (Marine Scotland 2021b).

In addition to the Marine Scotland public registers, GIS analysis of known infrastructure in the area was undertaken, using the data sources above. There were no additional proposed plans relating to this infrastructure identified as all infrastructure is already in place with no additional maintenance or repairs scheduled that the applicant is aware of.

One disposal site was identified within the 5km assessment search area of Cable Corridor 2.16 Colonsay to Mull. However, the site is now closed. Three power cables were identified within the 5km assessment area. The three cables are pre-existing and two of these cables do not cross the cable corridors. One cable crosses Cable Corridor 2.14 Mainland to Lismore in potentially a land crossing however, no pressure receptor pathway exists and no potential for inter-project effects.

Table 6-1 presents known projects, plans and licences identified from the various sources as being within the assessment search area.

Marine Scotland provided a list of projects within the Inner Hebrides geographical area these sites are listed below:

- Pipes and Cables – 3420 Scottish Water (Expired)
- Pipes and Cables – 5861 Scottish Water (Expired)
- Mooring- 4395 Mr Brown (Expired)
- Mooring – 4498 Mr Gourlay (Expired)
- Mooring – 4507 Mr Poett (Expired)
- Mooring – 4512 Mr Greer (Expired)
- Mooring – 5386 Scottish Sea Farms Ltd (Active)
- Mooring – 5655 Marine Harvest (Scotland) Ltd (Active)

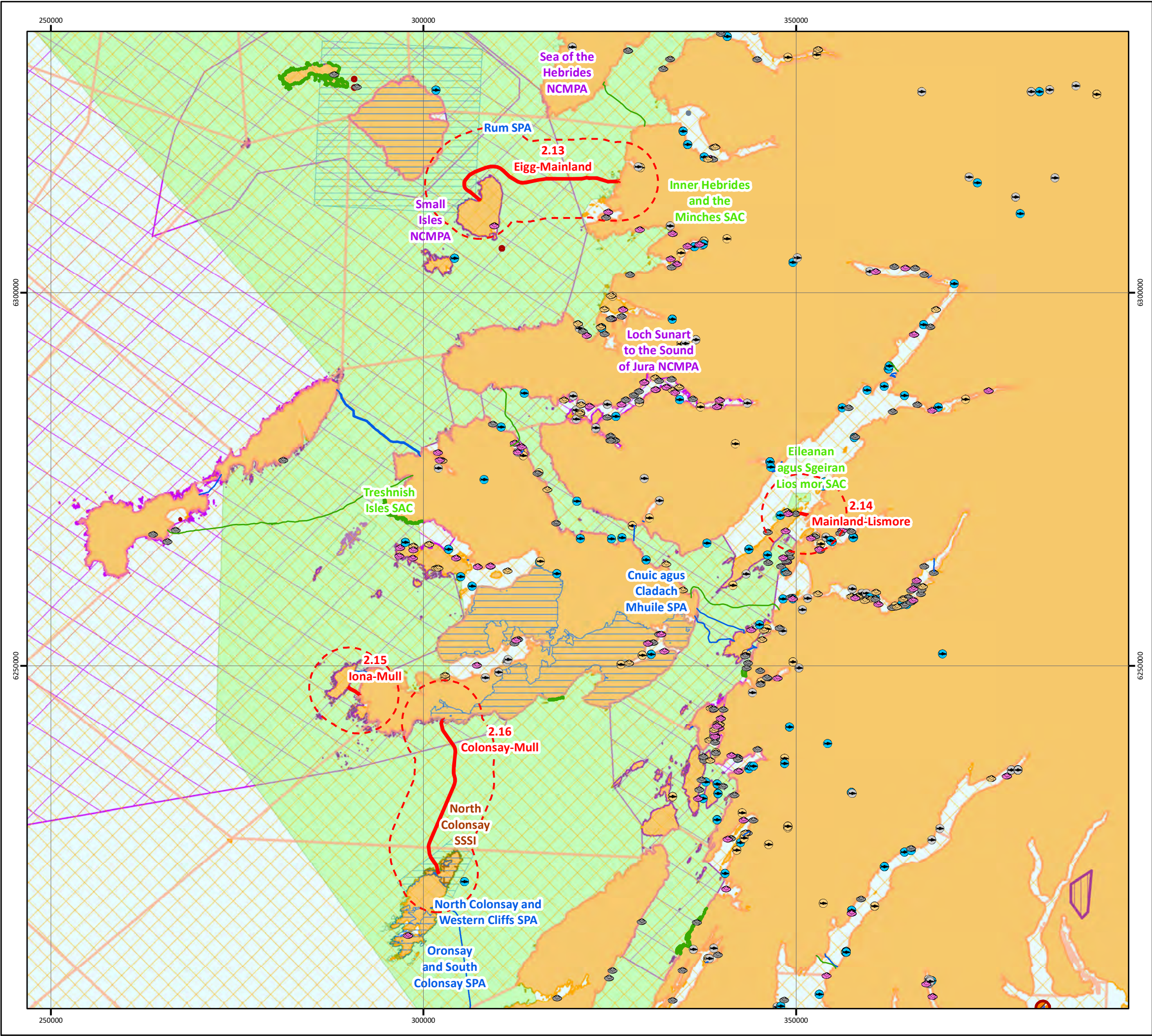
However, these projects have not been included in the assessment as the status of these works is either active or expired. This indicates the projects have either been completed or there are no licensable activities being carried out. Additionally, it assumed that there will be negligible effects between the works given the categories of the active projects.

#### **Fishing activity**

Key fishing activities within the Inner Hebrides geographical area in relation to the proposed cable corridors is shellfish. Shellfish are the most landed species with crab, European lobster, Norway lobster, razor clam and scallop as target species. Static gear is widely used across the area in the nearshore region (within 6NM). The most landed shellfish species in the Inner Hebrides geographical area are Norway lobster, brown crab and scallops. Demersal fishing is low across the Inner Hebrides geographical area (See Appendix E for more information on Inner Hebrides fishing activities, Document Reference: P2308-R5436-Rev0-FAS).

Both scallop dredging and demersal fishing induce the pressures penetration and/or disturbance to the substratum on the surface of the seabed including abrasion, and abrasion/disturbance of the substratum below the surface of the seabed. As a result, there is the potential that cable installation within the Inner Hebrides geographical area will have inter-project effects with scallop dredging and demersal fishing activity. Despite this, the Inner Hebrides cable installation will be a temporary and one-off disturbance. Furthermore, the installation of the Inner Hebrides cables would only induce these pressures on a narrow footprint on the seabed, therefore potential cumulative impacts with scallop dredging and demersal fishing activities will be highly limited and are therefore not considered further.





SCOTTISH ISLES

FIBRE OPTIC CABLE PROJECT

CUMULATIVE IMPACT

Other Marine Users

Inner Hebrides

Drawing No: P2308-CUMU-002\_IH

A

Legend

Application Corridor

5km Zone of Influence

Cables

Power

Telecom

Aquaculture Site

Fish, Active

Fish, Inactive

Fish, De-Registered

Shellfish, Active

Shellfish, Inactive

Shellfish, De-Registered

Seaweed Licence

Disposal Sites

Open

Closed

Disused

Military Practice Area

Defence Training Estate (DTE)

Navy Department

Environmental Designation

SAC

SPA

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NOTE: Not to be used for Navigation

Date	27 October 2021
Coordinate System	WGS 1984 UTM Zone 30N
Projection	Transverse Mercator
Datum	WGS 1984
Data Source	ONS; MS; KISCA; OGA; CES; CEFAS; UKHO; ESRI;
File Reference	J:\P2308\Mxd\14_CUMU\ P2308-CUMU-002_IH.mxd
Created By	Emma Kilbane
Reviewed By	Emma Langley
Approved By	Paula Daglish

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**Table 6-1 Projects identified from MS-LOT public register and from MS communication**

Project Category	Name	MS LOT Reference Number	Distance to cable corridor (km)				Does project category induce similar pressures to R100?	Projects to be taken forward to assessment?
			Cable 2.13	Cable 2.14	Cable 2.15	Cable 2.16		
Construction, alteration or improvement of any works	Marine Licence - Slipway Remedial Works - Iona Ferry Terminal, Iona	00009009			0.6		Yes	No – The main impact of this project is the potential for seabed habitat loss. The project is located 600m from Cable Corridor 2.15 Iona to Mull and has an area impact of 92m <sup>2</sup> therefore the projects will not interact. Additionally, this project has a limited seabed footprint and Argyll and Bute Council have deemed there are no foreseen impacts as it is maintenance of an existing slipway. Therefore, there will be negligible effects on the seabed and thus no cumulative impacts.
Fish (including shellfish) farm	Marine Licence - Marine Farm - Port na Moralachd, Loch Linnhe, Argyll	00009017	2.3				No	No, project category does not induce similar pressures to the Project, therefore there is no potential for inter-project effects
Mooring	Moorings - Port Appin, Argyll	00009047	0				Yes	No – The main impact of this project is the potential for seabed habitat loss. However, this project has a limited seabed footprint. Therefore, there will be negligible effects on the seabed and thus no cumulative impacts. This is also an existing site and the current licence application is to extend the existing licence.
Mooring	Mooring - Isle of Lismore	00009244		1			Yes	No – The main impact of this project is the potential for seabed habitat loss. However, this project has a limited seabed footprint. Therefore, there will be negligible effects on the seabed and thus no cumulative impacts.

Project Category	Name	MS LOT Reference Number	Distance to cable corridor (km)				Does project category induce similar pressures to R100?	Projects to be taken forward to assessment?
			Cable 2.13	Cable 2.14	Cable 2.15	Cable 2.16		
Mooring	Marine Licence - Existing Moorings	00009275		2.4			Yes	No – The main impact of this project is the potential for seabed habitat loss. However, this project has a limited seabed footprint. Therefore, there will be negligible effects on the seabed and thus no cumulative impacts.
Chemotherapeutant	Wellboat Discharge - Creran B, Loch Creran	06613		4.9			No	No, project category does not induce similar pressures to the Project, therefore there is no potential for inter-project effects
Fish (including shellfish) farm	New Shellfish Farm - Poll nam Partan, Isle of Eigg	06775	4				No	No, project category does not induce similar pressures to the Project, therefore there is no potential for inter-project effects
Fish (including shellfish) farm	Marine Licence - Marine Farm - Shuna Island, Loch Linnhe	00009254		4.9			No	No, project category does not induce similar pressures to the Project, therefore there is no potential for inter-project effects
Mooring	16 Private Moorings - South Shian Bay, Loch Creran	06791/1809 12		2.8			Yes	No – The main impact of this project is the potential for seabed habitat loss. However, this project has a limited seabed footprint. Therefore, there will be negligible effects on the seabed and thus no cumulative impacts.
Pontoon	Existing Pontoon - South Shian, Loch Creran	06845		3.4			Yes	No – The main impact of this project is the potential for seabed habitat loss. However, this project has a limited seabed footprint. Therefore, there will be negligible effects on the seabed and thus no cumulative impacts. This is also an existing site and the current licence application is to extend the existing licence.

Project Category	Name	MS LOT Reference Number	Distance to cable corridor (km)				Does project category induce similar pressures to R100?	Projects to be taken forward to assessment?
			Cable 2.13	Cable 2.14	Cable 2.15	Cable 2.16		
Mooring	Existing Commercial Moorings- Rubha Dearg, Loch Creran	06878		5			Yes	No – The main impact of this project is the potential for seabed habitat loss. However, this project has a limited seabed footprint. Therefore, there will be negligible effects on the seabed and thus no cumulative impacts.
Mooring	Marine Licence - Moorings - Loch Nan Ceall, Arisaig - 00009373	00009373	4				Yes	No – The main impact of this project is the potential for seabed habitat loss. However, this project has a limited seabed footprint. Therefore, there will be negligible effects on the seabed and thus no cumulative impacts
Chemotherapeutant	Marine Licence - Wellboat Discharge - Colonsay, Isle of Colonsay	07002				2.3	No	No project category does not induce similar pressures to the Project, therefore there is no potential for inter-project effects
Pontoon	Marine Licence Application- Pontoon- Isle of Eriska, Benderloch	07058		1.7			Yes	No – The main impact of this project is the potential for seabed habitat loss. However, this project has a limited seabed footprint. Therefore, there will be negligible effects on the seabed and thus no cumulative impacts.
Mooring	Marine Licence - Moorings - Loch Staosnaig, Colonsay	07289				4	Yes	No – The main impact of this project is the potential for seabed habitat loss. However, this project has a limited seabed footprint. Therefore, there will be negligible effects on the seabed and thus no cumulative impacts.
Construction, alteration or improvement of any works	Fionnphort Harbour Redevelopment	N/A			0.6 (Iona) and 0.9 (Mull)		Yes	No – MS-LOT lists this project as Pre-Application stage. No application has been submitted at present and licence has not been granted yet. If the project progresses it will be required to include the R100

Project Category	Name	MS LOT Reference Number	Distance to cable corridor (km)				Does project category induce similar pressures to R100?	Projects to be taken forward to assessment?
			Cable 2.13	Cable 2.14	Cable 2.15	Cable 2.16		
								project in its assessment of cumulative impacts.
Construction, alteration or improvement of any works	Screening Request – Fionnphort Breakwater and Overnight Berth	N/A			0.6 (Iona) and 0.9 (Mull)		Yes	No – MS-LOT lists this project as Pre-Application stage. No application has been submitted at present and licence has not been granted yet. If the project progresses it will be required to include the R100 project in its assessment of cumulative impacts

#### 6.3.3.3 Relevant projects

A total of 17 projects were identified using MS-LOT and 29 projects identified using GIS analysis that were within the assessment search area. The initial screening process of the projects did not identify any project needing further assessment as there were either no potential pathway receptors, the projects licences were expired or there were negligible effects. Therefore, an in-combination effect is not expected to occur in the Inner Hebrides geographical area.

### 6.4 Qualifying Interest Feature Summary

The HRA screening identified that six European sites require AA and that there was a potential for LSE on a total of six bird qualifying species, two seal species and harbour porpoise from these sites. A summary of key information on these species including foraging ranges, sensitivity to disturbance and seasonal information (e.g. breeding and moulting) where available has been provided in Table 6-2 below.

**Table 6-2 Interest feature summary**

Receptor	Woodward <i>et al.</i> , 2019		Joint SNCB, 2017		Suggested seasonal definitions for birds in the Scottish Marine Environment (NatureScot, 2020)											
	Mean-Max Foraging (km)	Range	Disturbance Susceptibility	Habitat Specialisation	Winter			Summer						Winter		
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Auks																
Guillemot ( <i>Uria aalge</i> )	73.2		3	3												
Divers																
Red-throated diver ( <i>Gavia stellata</i> )	9.0		5	4												
Gulls and Terns																
Kittiwake ( <i>Rissa tridactyla</i> )	156.1		2	2												
Shearwater																
Manx shearwater ( <i>Puffinus puffinus</i> )	1346.8		1	1												
Terrestrial																
Chough ( <i>Pyrrhocorax pyrrhocorax</i> )	Unknown		Unknown	Unknown												
Golden eagle ( <i>Aquila chrysaetos</i> )	7 (Tesky, 1994)		Unknown	Unknown												
Marine Mammals																
Harbour seal ( <i>Phoca vitulina</i> )	21 (DECC, 2016).		N/A	N/A												
Grey seal ( <i>Halichoerus grypus</i> )	>100 (NatureScot, 2021b))		N/A	N/A												
Harbour Porpoise ( <i>Phocoena phocoena</i> )	Unknown		N/A	N/A												
Key		Bird breeding season / Seal pupping season														
		Harbour porpoise mating and pupping season														
		Present														

## 6.5 Inner Hebrides and the Minches SAC

### 6.5.1 Screening conclusion

The HRA screening identified that there was a potential LSE on the qualifying feature 'harbour porpoise' from the pressure 'Underwater noise changes'.

### 6.5.2 Conservation objectives

To ensure that the Inner Hebrides and the Minches SAC continues to make an appropriate contribution to harbour porpoise remaining at favourable conservation status. To ensure for harbour porpoise within the context of environmental changes, that the integrity of the Inner Hebrides and the Minches SAC is maintained through:

- Harbour porpoise within the Inner Hebrides and the Minches are not at significant risk from injury or killing,
- The distribution of harbour porpoise throughout the site is maintained by avoiding significant disturbance,
- The condition of supporting habitats and the availability of prey for harbour porpoise are maintained.

### 6.5.3 Assessment against conservation objectives (includes feature assessment)

#### 6.5.3.1 Underwater noise changes

A summary of the qualifying features and cable corridors screened in for the pressure underwater noise changes in the Inner Hebrides and the Minches SAC is provided in Table 6-3.

**Table 6-3 Summary of LSE for underwater noise changes for the qualifying features of Inner Hebrides and the Minches SAC**

Feature	Cable 2.13	Cable 2.14	Cable 2.15	Cable 2.16
Harbour porpoise				

Note: Blue cells denote cable corridors where screening has identified a potential for LSE and dark blue cells denote where cable corridors are within a protected site.

Underwater noise changes generated by Project vessels and installation equipment may pose a risk to the harbour porpoise population of Inner Hebrides and the Minches SAC. Such noise has the ability to impact the species through auditory injury or temporary or continuous disturbance.

Harbour porpoise can be found in inshore waters through the Northern Hemisphere, but the density of porpoises in Hebridean waters is amongst the highest in Europe. They are also the most frequently seen cetacean species in the Hebrides with almost half the sightings between 2003 to 2017 being harbour porpoise (HWDT 2018). This species is widespread amongst the Hebrides and can be seen in most coastal areas, however the highest encounter rates occur around the Small Isles.

Harbour porpoise occur all year round in Hebridean waters and are considered a resident cetacean on the west coast of Scotland (IWDT 2018). The relative abundance of cetaceans between 1979 and 1997 provided by the NMPI (Marine Scotland 2021c) show that harbour porpoise is present in high densities across all of the western coast of Scotland. The harbour porpoise breeding season occurs from June to September with the birthing period occurring from June to August (Kesserling, 2017). The SCANS-III density estimate for harbour porpoise in waters off the north-western coast of Scotland is 0.397 animals per km<sup>2</sup> and in western waters is 0.336 animals per km<sup>2</sup>, which is greater than the West Scotland average of 0.238 animals per km<sup>2</sup> (Hammond et al 2021).



Harbour porpoise are present within the Inner Hebrides and the Minches SAC year-round, so will be present in the Minches during cable installation works. Figure 6-2 (Drawing Reference: P2308-MAMM-005-IH-A) details the density of harbour porpoise present within the Inner Hebrides geographical area.

Cable Corridor 2.13 Eigg to Mainland is the only cable corridor which is within an area of predicted high density (top 5%) (NMPI, 2021). All other cable corridors within the Inner Hebrides region are in top 50% of predicted density (NMPI, 2021). While Cable Corridor 2.13 Eigg to Mainland transits through a predicted high density hot spot, it is not the only or largest area with higher densities. Indicating that there are other areas suitable for harbour porpoise which will not be affected by cable installation work and can be utilised by the mobile species.

An EPS Risk Assessment has been undertaken to support an EPS licence application. This concluded that there is an extremely low likelihood (negligible) that the project-related noise will cause injury to EPS (including harbour porpoise). It also concluded, that the effects of disturbance from cable installation activities from underwater noise will only occur if marine mammals are within the 1.1km of the noise source (the zone of influence) for at least 24 hours. As this is highly unlikely due to harbour porpoise mobile nature, the effects are negligible.

There is potential for temporary disturbance from underwater noise to harbour porpoise from installation activities in all the Inner Hebrides cable corridors, up to 1.1km from impulsive noise from operating the USBL. Cable installation activities will be a continuous, transient temporary (approximately 5 to 14 days for offshore activities) one off event. The time that the works will be transiting through the area of higher density (in the top 5% to 20%) in Cable Corridor 2.13 Eigg to Mainland, will be approximately 37 hours within this period. Additionally, the cable installation activities are set within a region where shipping noise is common suggesting animals will exhibit a degree of habituation. Evidence suggests that avoidance behaviour will be temporary, with individuals returning to the area affected once the sound has ceased (Bowles et al. 1994; Morton and Symonds 2002; Stone and Tasker 2006; Gailey et al. 2007; Stone et al. 2017). Therefore, temporary behavioural impacts (disturbance) to marine mammals are expected but will not be extensive, severe, or biologically significant, given the transient and short-term nature of installation activities.

As such the distribution of harbour porpoise throughout the SAC will be maintained in the long term. Although there could be disturbance to harbour porpoise, it will be temporary and will not affect the short-term distribution within the SAC. Overall, Favourable Conservation Status (FCS) will be maintained and there will be no significant impact on the integrity of the site. An EPS license will be submitted, but no mitigation is proposed.

**No LSE will occur on the qualifying features within Inner Hebrides and the Minches SAC.**

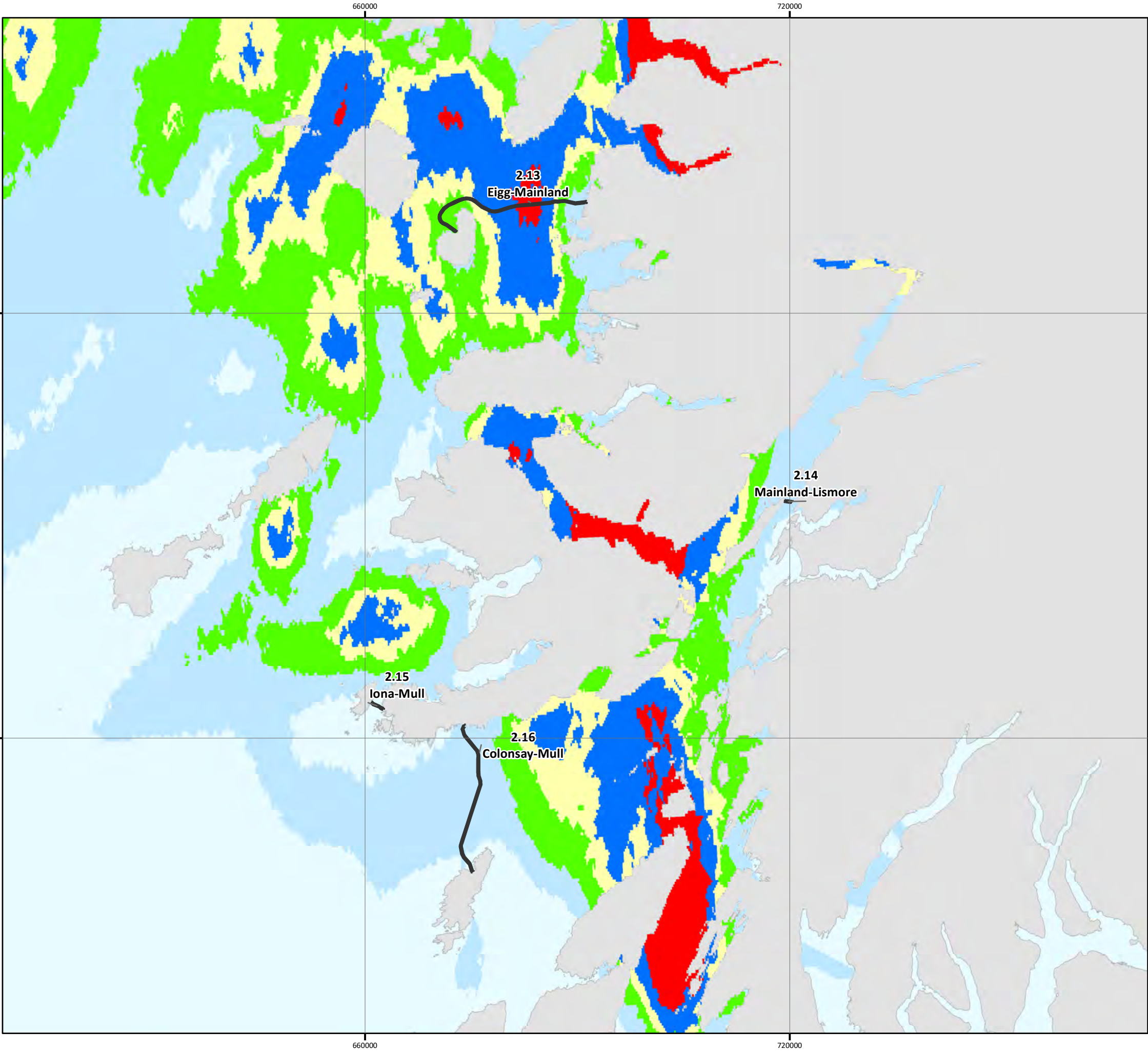
#### 6.5.4 Project specific mitigation

EPS Licence Application concluded no project specific mitigation is required.

#### 6.5.5 Conclusion

Given the short-term, localised and transient nature of the installation activities, any disturbance caused will not be significant, ensuring the species distribution within the site is maintained. Underwater noise changes and associated cable installation activities will not affect the supporting habitat of harbour porpoise or the availability of prey species within the Minches, ensuring they are maintained for use by harbour porpoise into the future.

In conclusion, the conservation objectives of the Inner Hebrides and the Minches SAC will not be affected and there will be **no adverse effect on the integrity of the site either alone or in combination with other plans or projects.**



SCOTTISH ISLES  
FIBRE OPTIC CABLE PROJECT  
MARINE MAMMALS  
Areas of Predicted High Density of  
Harbour Porpoise (visual) (2003 - 2010)

Drawing No: P2308-MAMM-005\_IH

A

Legend

Cable Route Application Corridor

Areas of Predicted High Density

Harbour Porpoise

Top 50%

Top 20%

Top 15%

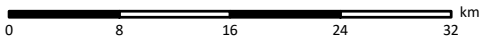
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NOTE: Not to be used for Navigation

Date	25 October 2021
Coordinate System	WGS 1984 UTM Zone 29N
Projection	Transverse Mercator
Datum	WGS 1984
Data Source	SNH; ESRI; OSOD; ONS
File Reference	J:\P2308\Mxd\09_MAMM\ P2308-MAMM-005_IH.mxd
Created By	Emma Kilbane
Reviewed By	Emma Langley
Approved By	Paula Daglish



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## 6.6 Eileanan agus Sgeiran Lios mor SAC

### 6.6.1 Screening conclusion

The HRA screening identified that there was a potential LSE on the qualifying feature 'harbour seal' from the pressure 'Underwater noise changes'.

### 6.6.2 Conservation objectives

To avoid deterioration of the habitats of harbour seal (the qualifying species) or significant disturbance to harbour seal, thus ensuring that the integrity of the site is maintained, and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and to ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site,
- Distribution of the species within site,
- Distribution and extent of habitats supporting the species,
- Structure, function and supporting processes of habitats supporting the species,
- No significant disturbance of the species.

### 6.6.3 Assessment against conservation objectives (includes feature assessment)

#### 6.6.3.1 Underwater noise changes

A summary of the qualifying features and cable corridors screened in for the pressure underwater noise changes in Eileanan agus Sgeiran Lios mor SAC is provided in Table 6-4.

**Table 6-4 Summary of LSE for underwater noise changes for the qualifying features of Eileanan agus Sgeiran Lios mor SAC**

Feature	Cable 2.13	Cable 2.14	Cable 2.15	Cable 2.16
Harbour seal				

Note: Blue cells denote cable corridors where screening has identified a potential for LSE.

#### Harbour Seal

Eileanan agus Sgeiran Lios mor SAC is on the West Coast of Scotland and consists of five groups of small offshore islands and skerries. The site is designated for its nationally important harbour seal colony, with Lismore providing the most enclosed site used by harbour seal. It is estimated 600 adults haul out at the site which represents 1% of the UK population of harbour seal (SNH, 2006, JNCC, 2021). An assessment conducted in 2014 has described the condition of the harbour seal feature as favourable maintained and more recent study conducted in 2020 has shown an increase in the West Coast of Scotland population (Marine Scotland, 2020; Nature Scot, 2014).

As described in Section 6.3.1, the sound generated by the USBL is audible to harbour seal and therefore could potentially disturb animals. Calculations presented in the Inner Hebrides Geographical Region European Protected Species (EPS) Assessment (Document: P2308\_R5285\_Rev1) concluded auditory injury will not occur in seal, but disturbance may occur within 1.1km of the USBL (highly pessimistic estimate).

Cable Corridor 2.14 Mainland to Lismore is within 1.1km of the SAC. However, the closest part of the SAC is on the other side of Lismore island to the cable corridor, so there is no direct line for underwater noise to travel within 1.1km of the installation activities. Therefore, underwater noise will not impact seals within the SAC.



Cable Corridor 2.14 Mainland to Lismore will pass between the northern and southern areas of the SAC, as the SAC is comprised of multiple areas. This could cause a temporary restriction to seal moving between the areas. However, as the vessel will be moving continuously through the area, and seals will be able to move faster than the typical vessel speed (2km/h), there will be no barrier to seals moving between the SAC areas. The remaining cable corridors in the Inner Hebrides geographical area are a sufficient distance away from the SAC (minimum 42.1km to Cable Corridor 2.16 Colonsay to Mull) that USBL activities for those cable corridors would not impact seals from Eileanan agus Sgeiran Lios mor SAC.

The calculations presented in the Inner Hebrides EPS Assessment were highly precautionary. NMFS (2018) acknowledge that criteria for disturbance (termed effective silence in the case of NMFS 2018), are not representative of the effects on animals within their natural environment but are based on a limited number of studies of captive individuals and do not take into account habituation to ambient sound. Within the Inner Hebrides waters, ambient sound is dominated by shipping noise (Richards et al., 2007), which is of low frequency in addition to fishing and military operations. These ambient sound sources are likely to reduce the effects of disturbance from the USBL.

Animals will not be subject to lasting or prolonged periods of disturbance. Recent studies have shown that individuals will quickly return to an area that was subjected to even high-intensity noise emissions within a short period of time (Russell *et al.*, 2016). As such, noise and associated temporary one-off disturbance from the cable laying activities themselves will not result in a significant adverse effect on nearby individuals.

**No LSE will occur on the qualifying features within Eileanan agus Sgeiran Lios mor SAC.**

#### 6.6.4 Project specific mitigation

None specified.

#### 6.6.5 Conclusion

The installation activities will be a transient, temporary occurrence that may briefly but not significantly disturb harbour seal in the water. The USBL will not cause injury to animals and animals will quickly return to the water once the vessel has passed through. There will be no short, medium or long-term effects on harbour seal. As such, the harbour seal population will not be significantly disturbed by the Project.

The in-combination assessment did not identify any relevant projects with the potential to act in-combination with the R100 project to cause a cumulative impact within the Eileanan agus Sgeiran Lios mor SAC.

In conclusion, the conservation objectives of the Eileanan agus Sgeiran Lios mor SAC will not be affected and therefore there will be **no adverse effect on the integrity of the site either alone or in combination with other plans or projects.**

### 6.7 Treshnish Isles SAC

#### 6.7.1 Screening conclusion

The HRA screening identified that there was a potential LSE on the qualifying feature 'grey seal' from the pressure 'Underwater noise changes'.

#### 6.7.2 Conservation objectives

To avoid deterioration of the habitats of the qualifying species (grey seal) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained, and the site makes an

appropriate contribution to achieving favourable conservation status for each of the qualifying features; and to ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site,
- Distribution of the species within the site,
- Distribution and extent of habitats supporting the species,
- Structure, function and supporting processes of habitats supporting the species,
- No significant disturbance of the species.

### 6.7.3 Assessment against conservation objectives (includes feature assessment)

#### 6.7.3.1 Underwater noise changes

A summary of the qualifying features and cable corridors screened in for the pressure underwater noise changes in the Treshnish Isles SAC is provided in Table 6-5.

**Table 6-5 Summary of LSE for underwater noise changes for the qualifying features of Treshnish Isles SAC**

Feature	Cable 2.13	Cable 2.14	Cable 2.15	Cable 2.16
Grey Seal				

Note: Blue cells denote cable corridors where screening has identified a potential for LSE.

#### Grey Seal

The Treshnish Isles are a remote chain of uninhabited islands and skerries situated in south-west Scotland. The Treshnish Isles SAC protects 19.6km<sup>2</sup> across these islands, and the surrounding marine area. The SAC is designated for its grey seal population. The islands, numerous skerries, islets and reefs support a breeding colony of grey seals, contributing just under 3% of annual UK pup production (JNCC, 2021). The SAC is located at least 16.1km from the closest cable corridor (Cable Corridor 2.15 Iona to Mull), but all cable corridors within the Inner Hebrides geographical area are within the foraging range of grey seals from the site.

The only potential source of noise capable of having a significant effect on harbour seal is the use of USBL devices. Seals present in the vicinity of installation activities could be susceptible to disturbance from USBL devices given the overlap in their hearing ranges and frequencies generated by USBL devices. Recent studies have shown that individuals will quickly return to an area that was subjected to even high-intensity noise emissions within a short period of time (Russell et al., 2016). The highly precautionary calculations identified that disturbance may occur within 1.1km of the USBL, so the zone of influence from the installation activities does not overlap with the SAC. None of the cable corridors are located close enough to the SAC to disturb seals at their haul-out sites within the SAC.

The cable installation activities will be a continuous, transient and temporary one-off event (approximately 5-14 operational days per cable corridor). As the installation activities will typically move at a maximum speed of 2 knots, the highly precautionary area of disturbance will move with the vessel and the effects will be brief in any one place and localised to the installation activity. Animals will not be subject to lasting or prolonged periods of disturbance. As such, noise and associated temporary disturbance from the cable laying activities themselves will not result in a significant adverse effect on nearby individuals.

**No LSE will occur on the qualifying features within the Treshnish Isles SAC.**

#### 6.7.4 Project specific mitigation

None specified.

#### 6.7.5 Conclusion

As there is no overlap of the 1.1km zone of influence of disturbance and the SAC there will be no significant disturbance to seals within the site. Additionally, the installation activities will be a transient, temporary occurrence that will not affect grey seal in the long-term. As such, the grey seal population will not be significantly disturbed by the Project.

The in-combination assessment did not identify any relevant projects with the potential to act in-combination with the R100 project to cause a cumulative impact within the SAC.

In conclusion, the conservation objectives of the Treshnish Isles SAC will not be affected and therefore there will be **no adverse effect on the integrity of the site either alone or in combination with other plans or projects.**

### 6.8 Cnuic agus Cladach Mhuile SPA

#### 6.8.1 Screening conclusion

The HRA screening identified that the pressure visual (and above water noise) disturbance could have a potential LSE on the qualifying feature golden eagle.

#### 6.8.2 Conservation objectives

To avoid deterioration of the habitats of the qualifying species (golden eagle) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and to ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site,
- Distribution of the species within site,
- Distribution and extent of habitats supporting the species,
- Structure, function and supporting processes of habitats supporting the species,
- No significant disturbance of the species.

#### 6.8.3 Assessment against conservation objectives (includes feature assessment)

##### 6.8.3.1 Visual (and above water noise) disturbance

A summary of the qualifying features and cable corridors screened in for visual (and above water noise) disturbance in Cnuic agus Cladach Mhuile SPA is provided in Table 6-6.

**Table 6-6 Summary of LSE for visual (and above water noise) disturbance for the qualifying features of Cnuic agus Cladach Mhuile SPA.**

Feature	Cable 2.13	Cable 2.14	Cable 2.15	Cable 2.16
Golden eagle				

Note: Dark blue cells denote where cable corridors are within European site.

##### Golden eagle

The Cnuic agus Cladach Mhuile SPA is a terrestrial, predominantly upland SPA on the island of Mull. It spans 292.5km<sup>2</sup>, and includes moorland, woodland and several freshwater loch habitats. The highest part of the site is at the Munro Ben More, extending down to sea level along much of the southern

boundary of the SPA. The site was designated to protect the breeding population of golden eagle, which is of European importance (NatureScot, 2015). The Mull landing point for Cable Corridor 2.16 Colonsay to Mull is just within the south-western boundary of the SPA. Therefore, installation activities within Cable Corridor 2.16 Colonsay to Mull at the landing point have potential to disturb golden eagle nesting and foraging within the SPA.

In a national survey carried out in 2015, 508 breeding pairs were nesting in Scotland (NatureScot, 2021a). At a national level the species is above the favourable conservation status however has not fully recovered at a regional level (NatureScot, 2021a; Whitfield et al., 2006). Golden eagles can be found all year round in Scotland and egg laying occurs during March. In general, golden eagles have a large home range favouring open moorlands and hillsides and mostly nest in trees or on rocky cliff ledges (RSPB, 2021). Their nesting period is March to July and during the nesting season the eagle will forage approximately 7km from their nest (Tesky, 1994).

Golden eagle are considered sensitive to human disturbance with incidence of reduced productivity due to motorised vehicles (Beecham and Kochert, 1975; Pauli, Spaul and Heath, 2017). However, this sensitivity is due to over road vehicles or from human recreation activity near their nesting sites (Pauli, Spaul and Heath, 2017).

Cable Corridor 2.16 Colonsay to Mull intersects with the SPA at its most south-western limit and passes through an area of dune grassland, with the BMH in an area of poor semi-improved grassland. This is not the sort of habitat golden eagles favour for foraging or nesting. Activities at the Cable 2.16 Mull landing point are predicted to take up to 14 days, therefore any disturbance to golden eagle will be relatively short-term and temporary.

Given the low probability of golden eagle being present within the vicinity of the landing point and the short duration of the works, no significant effects on golden eagle will occur.

**No LSE will occur on the qualifying feature golden eagle within Cnuic agus Cladach Mhuile SPA.**

#### 6.8.4 Project specific mitigation

None specified

#### 6.8.5 Conclusion

The installation activities will be a transient, temporary occurrence that will not affect golden eagle populations in the long-term. As such, the golden eagle population will not be significantly disturbed by the Project.

The in-combination assessment did not identify any relevant projects with the potential to act in-combination with the R100 project to cause a cumulative impact within the SPA.

In conclusion, the conservation objectives of the Cnuic agus Cladach Mhuile SPA will not be affected and therefore there will be **no adverse effect on the integrity of the site either alone or in combination with other plans or projects.**

### 6.9 North Colonsay and Western Cliffs SPA

#### 6.9.1 Screening conclusion

The HRA screening identified that the pressure Visual (and above water noise) disturbance could have a potential LSE on the qualifying features:

- Chough,
- Guillemot,
- Kittiwake.



## 6.9.2 Conservation objectives

To avoid deterioration of the habitats of the qualifying species (chough, guillemot and kittiwake) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and to ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site,
- Distribution of the species within site,
- Distribution and extent of habitats supporting the species,
- Structure, function and supporting processes of habitats supporting the species,
- No significant disturbance of the species.

## 6.9.3 Assessment against conservation objectives (includes feature assessment)

### 6.9.3.1 Visual (and above water noise) disturbance

A summary of the qualifying features and cable corridors screened in for visual (and above water noise) disturbance in North Colonsay and Western Cliffs SPA is provided in Table 6-7

**Table 6-7 Summary of LSE for visual (and above water noise) disturbance for the qualifying features of North Colonsay and Western Cliffs SPA**

Feature	Cable 2.13	Cable 2.14	Cable 2.15	Cable 2.16
Chough				
Black-legged kittiwake				
Guillemot				

Note: Dark blue cells denote where cable corridors are within European site. Blue cells denote cable corridors where screening has identified a potential for LSE.

North Colonsay and Western Cliffs SPA is located at the north of Colonsay island, overlapping the boundaries of North Colonsay SSSI and the West Colonsay Seabird Cliffs SSSI and extending approximately 1km into the marine environment. It was designated primarily for supporting the northernmost stable population of chough in Europe, with importance to maintaining the breeding range of chough in Britain and the EC (NatureScot, 2009).

### Guillemot and kittiwake

Table 6-8 provides the latest population estimate (recorded in 2014), and condition status for the two species (JNCC, 2015; NatureScot, 2009).

**Table 6-8 Population estimates and condition status**

	Guillemot	Kittiwake
Population estimate	6,656 pairs	4,512 individuals
% of the GB population	0.9%	0.9%
Condition status	Favourable, Maintained	Favourable, Maintained
Breeding season	April to August	April to August

As the installation activities for the Colonsay landing point of Cable Corridor 2.16 Colonsay to Mull are within the SPA, there is potential for disturbance to individuals nesting and foraging within the SPA.

Due to the foraging range of guillemot, there is also potential for disturbance to guillemot from the SPA foraging within Cable Corridors 2.14 Mainland to Lismore and Cable Corridor 2.15 Iona to Mull.

In the Joint SNCB Interim Displacement Advice Note (JNCC, 2017b), guillemot is classed as having both a moderate habitat specialisation and susceptibility to disturbance (score of 3 out of 5). Kittiwake is classed as having a low habitat specialisation and susceptibility to disturbance (score of 2 out of 5). Both guillemot and kittiwake nest in dense colonies and ledges on rocky cliffs (Dunn, 1999; Cornell Lab of Ornithology, 2021). Most breeding guillemot and kittiwake leave Scotland to winter at sea, but they can still be seen in inshore waters and coastal areas year round (Scottish Wildlife Trust, 2021b, 2021a). They are most sensitive to disturbance during breeding months from April to August, when disturbance could impact nesting success and chick survival.

Cable Corridor 2.16 Colonsay to Mull lands at Kiloran Bay on Colonsay; a sandy bay, flanked by rocky headlands, which could provide suitable habitat for breeding kittiwake and guillemot. However, the Seabird 2000 census recorded that the majority of the kittiwake and guillemot nest on the steep cliffs outside of Kiloran bay to the west (JNCC, 2004). At the proposed BMH, the habitats are primarily composed of poor semi-improved grassland, sand and a small area of dune grassland on a gentle slope (Phase 1 habitat survey report available on request). These habitats are not suitable for breeding guillemot and kittiwake, so there is unlikely to be individuals nesting in the vicinity of the BMH.

Additionally, the vessel has potential to disturb birds as it approaches the Colonsay landing point, adjacent to the cliffs. Installation vessels will be slow moving (approximately 2km/hr), slower than walking speed (generally assumed to be 5km/hr), and at times stationary. At such slow speeds, the vessels are effectively stationary in terms of bird displacement. Studies have shown that slow moving vessels cause little disturbance to birds and birds may habituate to frequent and relatively benign events and noises (Natural England and Suffolk Coast and Heaths, 2012). It is therefore concluded that any disturbance to vessels passing the cliff nesting birds will be temporary and localised and will not result in any likely significant effects on kittiwake and guillemot.

As no nesting kittiwake or guillemot will be disturbed, and birds foraging at sea will only be subject to temporary and localised disturbance, there will be no significant disturbance. Therefore, distribution of the species within the site and their population as a viable component of the SPA will be maintained.

**No LSE will occur on the qualifying features kittiwake and guillemot within North Colonsay and Western Cliffs SPA.**

### Chough

Chough are present year-round at North Colonsay and Western Cliffs SPA and are afforded protection as both a breeding and wintering species. Chough are also protected here under the North Colonsay SSSI, which spans across the north of Colonsay within the SPA boundary. The last population estimate for the site (recorded in 2013) indicated that the SPA supports 6 breeding pairs of chough in summer, and 18 pairs of chough in winter (JNCC, 2015). The species is listed as "Unfavourable, declining", however there is active management to improve the feature which is resulting in some recovery (NatureScot, 2009). As the installation activities for the Colonsay landing point of Cable Corridor 2.16 Colonsay to Mull are within the SPA, there is potential for disturbance to breeding chough.

Chough nest on sea cliffs, rock faces or caves, and feed on invertebrates in grassland and soft soils (Whitehead *et al.*, 2005; Bignal *et al.*, 1996). Cable Corridor 2.16 Colonsay to Mull lands at Kiloran Bay on Colonsay; a sandy bay, flanked by rocky headlands, which could provide suitable habitat for breeding chough. However, the exact areas utilised by nesting chough is unknown. During the breeding season, chough mainly feed within 300m to 600m of their nest sites, depending on the quality of the nearby foraging habitat (Whitehead *et al.*, 2005, Johnstone *et al.*, 2011). They are most sensitive to disturbance during breeding months from April to August, when disturbance could impact nesting success and chick survival.

As a terrestrial species, chough are not included in the Joint SNCB Interim Displacement Advice Note (2017) assessment. Studies on terrestrial disturbance found that during foraging, when they are most sensitive to disturbance, individuals will take flight if a human comes within 35m (Poole, 2003). In addition, a study by Bullock et al (1983) noted that chough were tolerant to human disturbance and are found to breed in busy tourist spots (Bullock, Drewett and Mickleburgh, 1983). A baseline report of choughs for the Wylfa Newydd Project in Anglesey Wales cited a personal communication from RSPB representative, Adrienne Stratford, maintaining that “Chough are considered to be generally resilient to disturbance as long as the disturbing factors are regular and present prior to breeding attempts, or occur later in the breeding period after the initial setting up of breeding territories” (Jackson, 2018).

Cable Corridor 2.16 Colonsay to Mull will pass through an area of dune grassland, with the BMH in an area of poor semi-improved grassland (Phase 1 habitat report available on request), which has been previously identified as an important feeding area for wintering chough (NatureScot, 2011). However, only a small area of the available grassland which is suitable for foraging will be impacted by the installation activities. Additionally, activities at the Cable 2.16 Colonsay landing point are predicted to take approximately 3 to 4 days, so disturbance to chough will be short-term and temporary.

For installation activities occurring during the wintering period, as chough have low sensitivity to disturbance, there will be no impact to nesting birds, and the installation activities will be localised, short-term and temporary, there will be no impact to wintering chough. However, should installation occur during the sensitive breeding period for chough, there is potential for significant disturbance to breeding chough which could impact nesting and foraging success and chick survival.

**LSE cannot be ruled out for Cable Corridor 2.16 Colonsay to Mull at the Colonsay landing point on the qualifying feature breeding chough within North Colonsay and Western Cliffs SPA.**

#### 6.9.4 Project specific mitigation

- M1 – Following licence submission and confirmation by NatureScot Ornithology expert on the use of Cable Corridor 2.16 Colonsay to Mull (Colonsay landing point) by breeding chough, appropriate local mitigation will be agreed.

#### 6.9.5 Conclusion

Due to the uncertainty surrounding the presence of breeding chough at the Colonsay landing point for Cable Corridor 2.16 Colonsay to Mull, further advice and information is being sought from Nature Scot. This was not available at the time of Marine Licence application submission. The applicant recognises that additional mitigation may be required at the Colonsay landing point if it is confirmed that chough breed near the landing site, and so may be affected by the installation activities. The Applicant is confident that if necessary, appropriate mitigation can be agreed with Nature Scot to ensure that there is no LSE.

The in-combination assessment did not identify any relevant projects with the potential to act in-combination with the R100 project to cause a cumulative impact within the SPA.

In conclusion, through the implementation of appropriate mitigation, the conservation objectives of the North Colonsay and Western Cliffs SPA will not be affected and therefore there will be **no adverse effect on the integrity of the site either alone or in combination with other plans or projects.**

### 6.10 Rum SPA

#### 6.10.1 Screening conclusion

The HRA screening identified that there was a potential LSE from the pressure visual (and above water noise) disturbance on the qualifying features:

#### Breeding

- Red-throated diver

#### Migratory

- Manx shearwater

#### Breeding seabird assemblage species

- Common guillemot
- Kittiwake

### 6.10.2 Conservation objectives

To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site,
- Distribution of the species within site,
- Distribution and extent of habitats supporting the species,
- Structure, function and supporting processes of habitats supporting the species,

No significant disturbance of the species

### 6.10.3 Assessment against conservation objectives (includes feature assessment)

#### 6.10.3.1 Visual (and above water noise) disturbance

A summary of the qualifying features and cable corridors screened in for the pressure visual (and above water noise) disturbance in Rum SPA is provided in Table 6-9.

**Table 6-9 Summary of LSE for visual (and above water noise) disturbance for the qualifying features of Rum SPA**

Feature	Cable 2.13	Cable 2.14	Cable 2.15	Cable 2.16
Red-throated diver				
Manx Shearwater				
Guillemot				
Kittiwake				

Note: Dark blue cells denote where cable corridors are within European site. Blue cells denote cable corridors where screening has identified a potential for LSE.

Rum SPA includes the Inner Hebridean Island of Rum, with a seaward extension of up to approximately 4km into the marine environment. Rum has a predominantly rocky coast with cliffs rising up to 210m, with few exposed and shingle-boulder beaches. The island habitats are mostly mountain and moorland, with streams and small lochs. Cable Corridor 2.13 Eigg to Mainland overlaps the south-east corner of the SPA near Eigg. However, due to the distance of the cable corridor to Rum Island (approximately 4.5km), there will be no impact to individuals nesting within the SPA.

#### Red throated diver

At the last population estimate (recorded in 2010), Rum SPA supported 13 pairs of red-throated diver, which was equivalent to 1% of the Great Britain population. As the closest protected land within the SPA is approximately 4.5km from the closest cable corridor (Cable Corridor 2.13 Eigg to Mainland),

there is no potential for installation activities to cause disturbance of nesting red-throated diver within the SPA. However, there is potential for disturbance to individuals foraging within Cable Corridor 2.13 Eigg to Mainland during the installation activities.

Red-throated diver is classed as having a high habitat specialisation (score of 4 out of 5) and very high susceptibility to disturbance (score of 5 out of 5). This finding is in line with other studies which indicate that red-throated divers are highly sensitive to anthropogenic activity and move away from ships in the marine environment (Schwemmer et al., 2011).

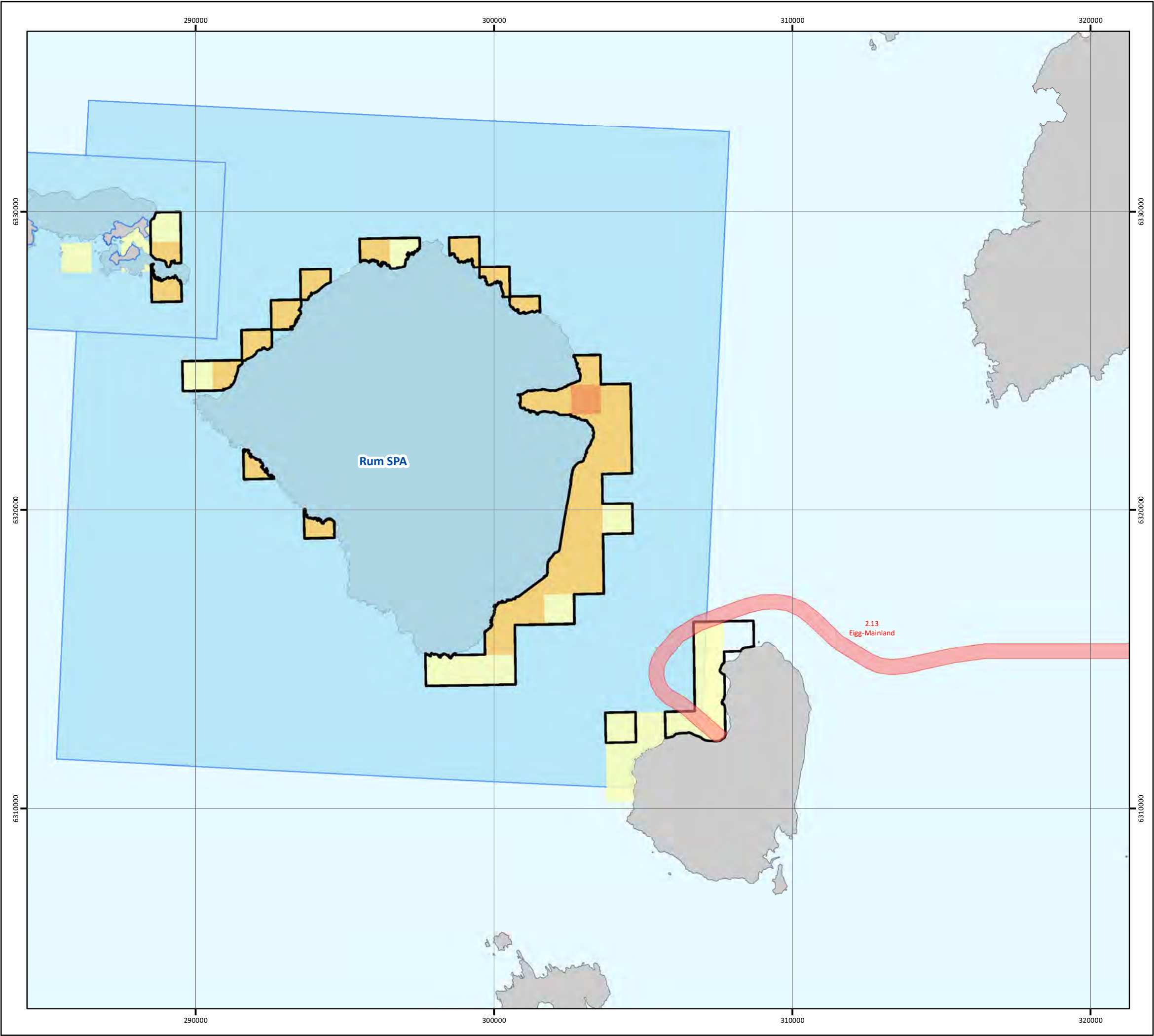
Previous research gathered for Rum SPA shows that there are predicted to be low densities (4 or less per km<sup>2</sup>) of red-throated diver within Cable Corridor 2.13 Eigg to Mainland, offshore of Eigg and at the Eigg landing point (Figure 6-3 Drawing Reference: P2308-BIRD-007\_IH-B). They are predominantly distributed off the north and east coasts of Rum, which will not be affected by the installation activities.

Installation vessels will be slow moving (approximately 2km/hr), slower than walking speed (generally assumed to be 5km/hr), and at times stationary. At such slow speeds, the vessels are effectively stationary in terms of bird displacement. Studies have shown that slow moving vessels cause little disturbance to birds and birds may habituate to frequent and relatively benign events and noises (Natural England and Suffolk Coast and Heaths, 2012). In addition, whilst red-throated diver are sensitive to visual disturbance, negligible disturbance has been shown to occur by vessels moving at less than 2km/h (Burger et al., 2019). The duration of operations along Cable Corridor 2.13 Eigg to Mainland are approximately 5 to 14 operational days. Given the wider area available, birds are likely to be able to find alternative feeding / loafing grounds in the short term. As red-throated diver have highest abundances in the site during the breeding season, should any works overlap with the winter months abundances will be lower and, disturbance to red-throated diver will be minimal.

Due to the temporary and localised nature of installation activities, there will be no significant disturbance of red-throated diver and their population as a viable component of (and distribution within) Rum SPA will be maintained.

**No LSE will occur on red-throated diver within the Rum SPA.**





SCOTTISH ISLES  
FIBRE OPTIC CABLE PROJECT

BIRD ACTIVITY  
Red-Throated Diver Distribution in Rum SPA

Drawing No: P2308-BIRD-007\_IH

B

Legend

Cable Route Applicaton Corridor

Red-Throated Diver Predictive Bird Distribution (per km<sup>2</sup>)

4 or less

4 - 12

12 - 24

24 - 40

40 or greater

Maximum Curvature

Protected Site

SPA

N

W

E

S

NOTE: Not to be used for Navigation

Date	18 October 2021
Coordinate System	WGS 1984 UTM Zone 30N
Projection	Transverse Mercator
Datum	WGS 1984
Data Source	ESRI; JNCC; OSOD; SNH
File Reference	J:\P2308\Mxd\11_BIRD\ P2308-BIRD-007_IH.mxd
Created By	Jessica Harvey
Reviewed By	Chris Dawe
Approved By	Jill Hobbs

BT

Global Marine

intertek

0 2 4 6 8 km

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© Esri; Contains public sector information licensed under the Open Government Licence v3.0. Link: <http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>; Contains Ordnance Survey data © Crown copyright and database right 2013; Joint Nature Conservation Committee, Scottish Natural Heritage, Ordnance Survey (Crown copyright and database right 2016). Wetland Bird Survey (WEBS) (British Trust for Ornithology (BTO)) Royal Society for the Protection of Birds (RSPB) Talisman Energy,

### Manx shearwater (Migratory), guillemot (Breeding) and kittiwake (Breeding)

Table 6-10 provides the last population estimate (published in 2020; JNCC, 2020) and condition status for the three species.

**Table 6-10 Population estimates and condition status**

	Manx shearwater	Guillemot	Kittiwake
<b>Population estimate</b>	61,000 pairs	4,000 individuals	1,500 pairs
<b>% of the population</b>	23% of the world biogeographic population	0.4% of the GB population	0.3% of the GB population
<b>Condition status (year of last assessed condition)</b>	Favourable, maintained (2003)	Unfavourable, no change (2015)	Unfavourable, no change (2015)
<b>Breeding season</b>	N/A	March to September	April to August

As the closest protected land within the SPA is approximately 4.5km from the closest cable corridor (Cable Corridor 2.13 Eigg to Mainland), there is no potential for installation activities to cause disturbance of nesting birds within the SPA. However, there is potential for installation activities to cause disturbance to Manx shearwater, guillemot and kittiwake from the SPA which are foraging within Cable Corridor 2.13 Eigg to Mainland. Due to the large foraging range of guillemot (73.2km), there is also potential for guillemot to be found foraging within all other cable corridors in the Inner Hebrides geographical area.

In the Joint SNCB Interim Displacement Advice Note (Joint SNCB, 2017), manx shearwater and kittiwake have very low and low susceptibility to vessel disturbance (1-2 out of 5). Guillemot is classed as having a moderate susceptibility to disturbance (score of 3 out of 5). Vessel activity through areas where these species are present on the surface may result in temporary displacement from optimal areas for feeding/loafing. The area disturbed due to vessel movements along the cable corridors is considered to be very small in the context of the distribution of these species (i.e. limited to the immediate vicinity of where works are being carried out).

Installation vessels will be slow moving (approximately 2km/hr) which is slower than walking speed (generally assumed to be 5km/hr), and at times stationary. At such slow speeds, the vessels are effectively stationary in terms of bird displacement. Studies have shown that slow moving vessels cause little disturbance to birds and birds may habituate to frequent and relatively benign events and noises (Natural England and Suffolk Coast and Heaths, 2012). It is therefore concluded that any temporary disturbance will be brief, minimal and localised and will not result in any likely significant effects on foraging Manx shearwater, guillemot or kittiwake. Their population will be maintained as a viable component of the SPA.

**No LSE will occur on Manx shearwater, guillemot or kittiwake within the Rum SPA.**

#### 6.10.4 Project specific mitigation

Without prejudice to the conclusion of no LSE on red-throated diver for the Rum SPA, as best practice the Applicant proposes that the following mitigation be implemented:

- M2 - All vessels associated with the cable installation operations within Cable Corridor 2.13 Eigg to Mainland will follow the "Guide to Best Practice for Watching Marine Wildlife" guidance on birds where practicable and reduce their speed on approach to the cable corridor to below 6knots should rafting birds be observed ahead.



### 6.10.5 Conclusions

The Rum SPA is a marine site designated to protect foraging red-throated diver. Whilst Cable Corridor 2.13 crosses through the south-east corner of the marine extension of the SPA on approach to the landing point on Eigg, it is at least 4.5km from the Island of Rum where red-throated diver breed. There will therefore be no LSE on nesting birds. Any visual (and above water noise) disturbance of foraging red-throated diver, caused by the installation works, will be temporary and localised. The distribution of this species within the site and their population as a viable component of the SPA will be maintained.

The installation activities will be a transient, temporary occurrence that will not affect golden eagle populations in the long-term. As such, the populations of the qualifying features will not be significantly disturbed by the Project.

The in-combination assessment did not identify any relevant projects with the potential to act in-combination with the R100 project to cause a cumulative impact within the SPA.

In conclusion, **the** conservation objectives of the Rum SPA will not be affected and therefore there will be no adverse effect on the integrity of the site either alone or in combination with other plans or projects.

## 7. CONCLUSIONS

The Protected Sites Assessment identified seven European Sites and two NCMPAs where there was a possible pressure-receptor pathway between the protected site and the proposed installation activities. There was one SSSI in the vicinity of the Inner Hebrides geographical area cable corridors (North Colonsay SSSI at the Colonsay landing point of Cable Corridor 2.16 Colonsay to Mull).

The NCMPA assessment concluded for the Sea of the Hebrides NCMPA that as the protected feature minke whale are only found in low densities within the cable corridors, will only be subject to temporary and localised disturbance and will not be injured by underwater noise generated during the installation activities, there will be no significant impact to these features. As only a small area within the Marine Geomorphology of the Scottish Shelf Seabed will be affected, there will be no significant effects to this feature.

For the Small Isles NCMPA, the assessment concluded that the qualifying feature black guillemot is unlikely to be found within the cable corridors and as the installation activities are short-term and transient no significant effect will occur to the feature of the NCMPA.

Overall, the project will not hinder the achievement of the management objectives for the two NCMPAs.

With respect to the European Sites, some of which are also designated as SSSIs, the Habitats Regulation Appraisal process was followed. Stage 1 Screening of the seven European sites concluded that for six of these sites a potential likely significant effect (LSE) could not be ruled out and therefore Stage 2 Appropriate Assessment (AA) is required.

Information to Inform AA has been provided (Section 6) and where appropriate, mitigation measures have been proposed. The assessment concluded that of the six sites, in the absence of mitigation LSE could occur to the qualifying interest 'breeding chough' of North Colonsay and Western Cliffs SPA through changes to supporting habitats (sand dune and machair). The supporting habitats are a designated feature of the North Colonsay SSSI. Therefore, mitigation M1 also applies to the North Colonsay and Western Cliffs SPA.

By applying project specific mitigation, there will be no adverse effects on breeding chough within the North Colonsay and Western Cliffs SPA.

Without prejudice to the conclusion of no LSE on red-throated diver for the Rum SPA, as best practice the Applicant proposes that the following mitigation be implemented:

- M2 - All vessels associated with the cable installation operations within Cable Corridor 2.13 Eigg to Mainland will follow the "Guide to Best Practice for Watching Marine Wildlife" guidance on birds where practicable and reduce their speed on approach to the cable corridor to below 6knots should rafting birds be observed ahead.

It is concluded that with the implementation of the mitigation measures prescribed above, the proposed installation activities will not have an adverse effect on the integrity of any Protected Sites.

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# APPENDIX A

## HRA, NCMPA Assessment and SSSI Assessment Processes

DRAFT

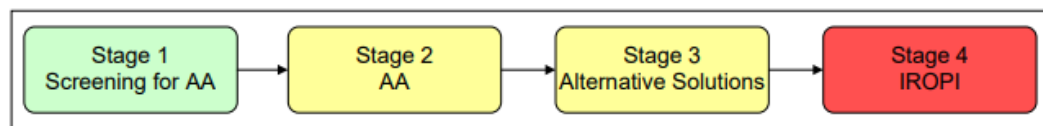
## A.1 HABITATS REGULATION APPRAISAL (HRA) PROCESS

The Conservation (Natural Habitats, &c.) Regulations 1994 (CHSR) (as amended) in Scotland requires that any plan or project which has the potential to adversely affect a European site, no matter how far away from that site, be subject to the Habitats Regulations Appraisal (HRA) process in order to determine whether Appropriate Assessment (AA) is required.

Whilst the obligation to undertake the AA is derived from Articles 6(3) and 6(4) of EC Council Directive 92/43/EC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive), it is regulation 48 of the CHSR that sets out procedural requirements. It is the role of the designated competent authority (in this case Marine Scotland) to undertake the HRA process. However, the applicant is required to provide necessary information to inform the process or to enable them to determine whether an AA is required. The competent authority can only agree to the plan or project if, based on the findings of the AA, it has ascertained that it will not have an adverse effect on the integrity of the site concerned. It is important to note that the onus is on demonstrating the absence (rather than the presence) of negative effects.

The HRA process involves four stages (as outlined in EC 2002 and shown in Figure A-1) that need to be applied in sequential order. The outcome at each successive stage determines whether a further stage in the process is required. The results at each stage must be documented so there is transparency of the decisions made.

Figure A-1 Stages of HRA process



There is no statutory method for undertaking the HRA process, but The Planning Inspectorate (2017) guidance outlines the steps to be taken by the applicant at each Stage.

Stage 1 - Screening for Appropriate Assessment is the process that addresses and records the reasoning and conclusions in relation to the first two tests of regulation 48 of the CHSR:

- Whether a plan or project is directly connected to or necessary for the management of the site, and
- Whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a European site in view of its conservation objectives.

Where significant effects are likely, uncertain, or unknown at screening stage, the process must proceed to Stage 2 (AA). Screening should be undertaken without the inclusion of mitigation, unless potential effects clearly can be avoided through the modification or redesign of the plan or project, in which case the screening process is repeated on the altered plan. The greatest level of evidence and justification will be needed in circumstances when the process ends at screening stage on grounds of no effect. Where a potential for significant effect has been identified the assessment must progress to Stage 2.

## A.2 NCMPA ASSESSMENT PROCESS

Under Section 126 of the Marine and Coastal Access Act (MCAA) 2009 an applicant must satisfy the public authority with the function of determining applications (in this case Marine Scotland) that there is no significant risk of the proposed act hindering the achievement of the conservation objectives stated for the NCMPA. It is therefore related to the published or draft conservation objectives and designated features of any NCMPA screened for likely significant effect (LSE).

The process for assessing the effects of a plan/project on a NCMPA follows a three-stepped assessment process. Like the HRA process, the outcome at each successive stage determines whether a further stage in the process is required. The stages of the process are Screening, Stage 1 Assessment and Stage 2 Assessment.

All marine licence applications are screened to determine whether Section 126 of the MCAA should apply. It will apply if it is determined that:

- the licensable activity is taking place within or near an area being put forward or already designated as an MPA; and
- the activity is capable of affecting (other than insignificantly) either (i) the protected features of an MPA; or (ii) any ecological or geomorphological process on which the conservation of any protected feature of an MPA is (wholly or in part) dependant.

If during the screening stage it has been determined that Section 126 should apply, it is necessary for the public authority to assess, by proceeding to Stage 1 Assessment, which elements of Section 126 should apply to a marine licence application.

This Protected Sites Screening Report presents the findings of the applicants Screening of Marine Protected Areas.

## A.3 SSSI ASSESSMENT PROCESS

SSSIs represent the best of Scotland's natural heritage. They are 'special' for their plants, animals or habitats, their rocks or landforms, or a combination of these. They can include freshwater, and sea water down to the mean low water mark of spring tides, as well as land.

Operations requiring consent, or ORCs, are those activities that NatureScot believe could damage the natural features of an SSSI and for which NatureScot is responsible for giving consent. Developers can apply for consent under the Nature Conservation (Scotland) Act 2004 to carry out, cause or permit to be carried out, operations likely to damage the natural feature(s) of a Site of Special Scientific Interest (SSSI).

When applying for consent, the applicant should provide NatureScot with information about the proposed activities such as the nature and location of the proposed activities. Written consent for operations that can be do