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SCOTTISH HYDRO ELECTRIC POWER DISTRIBUTION PLC

Marine Environmental Appraisal

Coll to Tiree Replacement Cable

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Intertek Metoc
Exchange House, Station Road, Liphook, Hampshire GU30 7DW, United Kingdom

DOCUMENT RELEASE FORM

SCOTTISH HYDRO ELECTRIC POWER DISTRIBUTION PLC

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Marine Environmental Appraisal

Coll to Tiree Replacement Cable

Author/s

Aodhfin Coyle, Eloise Boblin & Rosie Wilson

Project Manager	Authoriser
[Redacted]	[Redacted]
James Harding	James Harding

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GLOSSARY

AA
Appropriate Assessment

AIS
Automatic Identification Systems

BGS
British Geological Society

BHS
Broadscale habitats

BSL
Benthic Solutions Ltd

BWM
Ballast Water Management

CEMP
Construction Environmental Management Plan

CFE
Controlled flow excavator

CLV
Cable Lay Vessel

COLREGS
Compliance with International Regulations for the Prevention of Collision at Sea 1972

CPP
Construction Phase Plan

DP
Dynamic Positioning

DSV
Diver Support Vessel

EIA
Environmental Impact Assessment

EM
Embedded mitigation

EMODnet
European Marine Observation and Data Network

EPA
Environment Protection Agency

EPS
European Protected Species

EU
European Union

EUNIS
European Nature Information System

FeAST
Feature Activity Sensitivity Tool

FIR
Fishing Industry Representatives

FLO
Fisheries Liaison Officer

FLMAP
Fisheries Liaison Mitigation Action Plan

GB
Great Britain

GES
Good Environmental Status

GT
Giga Tonne

HDD
Horizontal Directional Drilling

HER
Historic Environment Records

HES
Historic Environment Scotland

HIRA
Hazard Identification and Risk Assessment

HMPA
Historic Marine Protected Areas

HPI
Habitat of Principal Importance

HRA
Habitats Regulations Appraisal

HWDT
Hebridean Whale and Dolphin Trust

Hz
Hertz

ICES
International Council for Exploration of the Seas

ICG-C
OSPAR Intersessional Correspondence Group on Cumulative Effects

IMO
International Maritime Organization

INNS
Invasive Non-Native Species

IS
In Service

kHz
Kilohertz

KIS-ORCA
Kingfisher Information Service – Offshore Renewable & Cable Awareness Project

Km
Kilometres

kV
Kilovolt

LAT
Lowest Astronomical Tide

LSE
Likely Significant Effects

M
Meters

MarLIN
Marine Life Information Network

MARPOL
International Convention for the Prevention of Pollution from Ships

MCAA
Marine and Coastal Access Act

MCA
Maritime and Coastguard Agency

MCS
Marine Conservation Society

MD-LOT
Marine Directorate Licensing Operations Team

MEA
Marine Environmental Appraisal

MEPC
Marine Environmental Protection Committee

MHWS
Mean High Water Springs

MLWS
Mean Low Water Springs

MPA
Marine Protected Area

MPS
Marine Policy Statement

NCMPA
Nature Conservation Marine Protected Areas

nm
Nautical Mile

NLB
Northern Lighthouse Board

NMP
National Marine Plan

NRHE
National Record of the Historic Environment

NSA
National Scenic Areas

NSTA
North Sea Transition Authority

OCT
Open Cut Trench

OGA
Oil and Gas Authority

OIMD
Operation, Inspection, Maintenance, and Decommissioning

OOS
Out of Service

OSPAR
Convention for the Protection of the Marine Environment of the North-East Atlantic

PAC
Pre-Application Consultation

PAD
Protocol for Archaeological Discoveries

PEXA
Practise and Exercise Areas

PLGR
Pre-Lay Grapnel Run

PMF
Priority Marine Features

pUXO
Potential Unexploded Ordnance

RBMP
River Basin Management Plans

ROV
Remotely Operated Vehicle

RSPB
Royal Society for the Protection of Birds

SAC
Special Area of Conservation

SBL
Scottish Biodiversity List

SEPA
Scottish Environmental Protection Agency

SEL
Sound exposure levels

SFF
Scottish Fishermen's Federation

SHEPD
Scottish Hydro Electric Power Distribution

SMWWC
Scottish Marine Wildlife Watching Code

SOPEP
Shipboard Oil Pollution Emergency Plans

SOLAS
International Regulations for the Safety of Life at Sea 1974

SOP
Standard Operation Procedures

SPA
Special Protection Areas

SPR
Scottish Power Renewables

SSE
Scottish and Southern Energy plc

SSEN
Scottish and Southern Electricity Network

SSSI
Site of Specific Scientific Interest

SSSIs
Sites of Specific Scientific Interest

SWFPA
Scottish White Fish Producers Association

TJP
Transition Joint Pit

UK
United Kingdom

UKHO
United Kingdom Hydrographic Office

UXO
Unexploded Ordnance

USBL
Ultra-Short Baseline

WCA
Wildlife and Countryside Act

WFD
Water Framework Directive

WHS
World Heritage Sites

WW
World War

ZoI
Zone of Influence

1. INTRODUCTION

Scottish Hydro Electric Power Distribution plc (SHEPD), part of the Scottish and Southern Energy plc (SSE) group of companies, holds a licence under the Electricity Act 1989 for the distribution of electricity in the north of Scotland including the islands. This region covers a quarter of the total United Kingdom (UK) landmass, with electricity being delivered to 740,000 customers. In the marine environment SHEPD maintains connections to 60 Scottish islands with over 100 subsea cable links totalling approximately 454 Kilometres (km). SHEPD has a statutory duty to provide an economic and efficient system for the distribution of electricity and to ensure that its assets are maintained to ensure a safe, secure and reliable supply to customers.

1.1 Purpose of This Document

The purpose of this Marine Environmental Appraisal (MEA) is to support a Marine Licence application being made under the Marine (Scotland) Act 2010 and The Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013), by SHEPD, for the replacement of the Coll to Tiree submarine electricity distribution cable (referred to hereafter as the Coll to Tiree cable). During the planning stages for the cable replacement project, two alternative routes were considered, both making landfall at Crossapol Bay, Coll. For these routes, SHEPD conducted formal Pre-Application Consultation (PAC) events on both Coll and Tiree. However, following discussions with the Marine Directorate Licensing Operations Team (MD-LOT), it was confirmed on 19th December 2024 that the cable route selected for this project is exempt from the formal PAC process. This exemption was granted due to the proposed route's close alignment with the existing cable route however stakeholder consultation has been undertaken on an ongoing basis. MD-LOT have informed SHEPD that they will treat this as an activity which has been previously carried out at the site, or a similar site, to which the application relates and for which a licence has been previously granted.

This MEA provides the baseline information and an assessment of the potential impacts on sensitive environmental receptors. Where potentially significant adverse effects have been identified, appropriate mitigation has been detailed to reduce the magnitude of effect to an acceptable level. The mitigation requirements identified by this MEA are also included in the supporting marine Construction Environmental Management Plan (CEMP), to ensure they are effectively disseminated to, and implemented by SHEPD and the cable installation contractor during the proposed works.

1.1.1 Objectives and Scope of the Marine Environmental Appraisal

This MEA provides an overview of the baseline environment within the proposed installation corridor The baseline environment includes physical and biological processes, and the human environment. The MEA identifies and assesses potential impacts from the proposed installation activities. A series of supporting documents are available for the Project which will be drawn upon or referenced throughout this MEA (listed in Table 1-1).

Table 1-1 Supporting Documents for the Marine Licence Application

Appendix	Document
A	Coll-Tiree Distribution Cable Replacement Project Description (P2663_R6275)
B	Argyll Fisheries Liaison Mitigation Action Plan (FLMAP) 2023
C	Argyll European Protected Species (EPS) Risk and Protected Sites and Species Assessment (Xodus, 2023)
D	Coll - Tiree (Offshore) Construction Environmental Management Plan (CEMP)

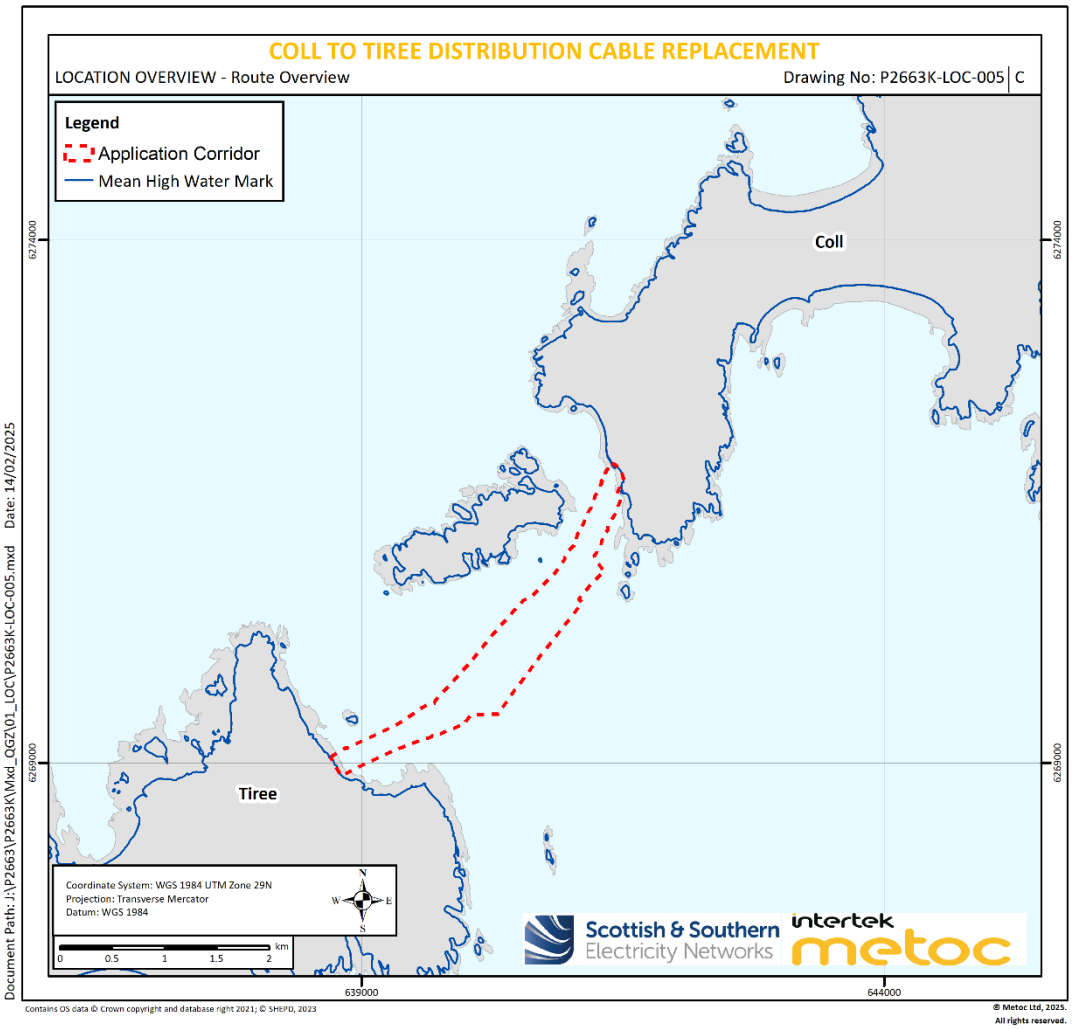
1.2 Overview of the Project

A single 33 kilovolt (kV) subsea electricity cable across the Gunna Sound connects the islands of Coll and Tiree to the electricity distribution network. The existing Coll – Tiree subsea cable was installed in 2014 and is reaching the end of its operational life and was recently identified for replacement as part of SSEN's routine inspection programme.

The existing landfalls on both Coll and Tiree will be reused for the new cable. The proposed cable will be approximately 4.3km in length in total.

An overview of the proposed Coll - Tiree cable replacement Application Corridor is shown in Figure 1-1.

Figure 1-1 Overview of the Proposed Replacement Cable Application Corridor



1.3 Consideration of Alternatives

The Coll – Tiree cable is being replaced primarily because of its poor condition in the approach to Coll due to the harsh seabed conditions in this area and a consequential history of cable faults. At the Coll end, alternative landfalls were considered, with options presented at multiple locations on Crossapol Bay and Loch Breachacha. However, significant environmental constraints influenced the decision not to proceed with the originally proposed route into Crossapol Bay. The primary concerns were the

presence of protected dune systems and Machair, both of which are designated features of the Coll Machair Special Area of Conservation (SAC). Additionally, the original route corridor included large areas of maerl bed, a sensitive marine habitat.

At the Tiree end, the landfall and its approaches are more benign, and there was no strong rationale from this perspective to alter from the existing landfall.

To mitigate the environmental impacts, the route was modified to follow the alignment of the existing cable, which avoids these sensitive areas while maintaining the benefits of the existing landfalls. These landfalls were ultimately selected for reuse due to their established connections to the electricity network and their proven track record for successful cable installation.

1.4 Exclusions from Assessment

This assessment covers the marine cable installation activities related to the replacement of the cable below Mean High Water Springs (MHWS). SHEPD realise that there is a need to consider options regarding potential future activities relating to maintenance and/or future decommissioning of the installed cable, specifically whether it shall be removed or left *in situ*. A separate Operation, Inspection, Maintenance and Decommissioning (OIMD) strategy will be developed, which will inform SHEPD's position on these activities.

1.5 Consultation

1.5.1 CalMac

SHEPD have held two meetings with CalMac in 2024 to provide updates on the current progress of the Coll - Tiree cable among others.

1.5.2 Fisheries

SHEPD have engaged with local fishermen on Tiree, the Scottish Fishermen's Federation (SFF) and Scottish White Fish Producers Association (SWFPA) Ltd throughout 2024 to communicate the progress of the Project and the planned survey and installation timescales.

1.5.3 Historic Environment Scotland (HES)

SHEPD have held multiple meetings with HES throughout 2024 to provide updates on the current progress of the Coll-Tiree cable route. HES participated in the PAC event which SHEPD held in July 2024.

1.5.4 Maritime and Coastguard Agency (MCA)

SHEPD have held multiple meetings with MCA throughout 2024 to provide updates on the current progress of the Coll-Tiree cable route and other projects. MCA requested information on what burial would be undertaken. SHEPD informed MCA that because of the conditions of the seabed burial would be limited and outlined that SHEPD were aware of 5% ruling and would not contravene this.

1.5.5 Marine Directorate Licencing Operations Team

SHEPD have held meetings with throughout 2024 to update on the planned submission of the Marine Licence Application and to identify if PAC was required for the application. This was confirmed via email as discussed in Section 1.1.

1.5.6 NatureScot

Consultation with NatureScot has taken place on a regular basis throughout 2023 regarding the Coll-Tiree Project. NatureScot advised of receptor sensitivities for the project including the Gunna

Designated Seal Haul Out Site, basking sharks and benthic habitats. NatureScot were kept informed of the marine survey outputs including presence of seagrass beds in Tiree nearshore area.

1.5.7 Northern Lighthouse Board (NLB)

SHEPD have engaged with the NLB throughout 2024 to communicate the progress of the Project and the planned survey and installation timescales.

1.5.8 Royal Society for the Protection of Birds (RSPB)

RSPB have been kept informed of the progress of the Project, with SHEPD providing regular updates throughout 2024. RSPB were provided with initial Project information and the marine survey campaign progress. RSPB advised SHEPD that they would be keen to identify Great Yellow Bumblebee presence in this area, however RSPB raised no concerns to SHEPD using this cable route.

1.5.9 Coll and Tiree Community Engagement Events

Public consultation events were held on Coll (31st July 2024 at An Chridhe Community Hall, Arinagour) and on Tiree (5th October 2023 at An Talla Community Hall, Crossapol). Key themes raised by attendees included potential environmental effects, mitigation measures, and cable protection and installation methodologies.

To ensure ongoing engagement, online project update meetings with Coll and Tiree Community Councils are proposed for February 2025. Further engagement is anticipated post-installation, potentially in autumn/winter 2025.

2. LEGISLATION AND POLICY

2.1 Introduction

This Section describes the key relevant policy, legislation and guidance which relates to the proposed cable installation activities and explains how and where these have been considered in the production of this MEA. This Section outlines the statutory legislation which SHEPD must adhere to during the installation and operation of the replacement distribution cable.

2.2 UK Marine Policy Statement

Prepared and adopted for the purposes of Section 44 of the Marine and Coastal Access Act (MCAA) 2009, the UK Marine Policy Statement (MPS) was published to provide a framework for preparing marine plans and making effective decisions affecting the marine environment (HM Government, 2011). The MPS applies to all UK waters and has been adopted by the UK government and all devolved administrations, with all regional and national plans required to conform to the MPS. The MPS also states that in relation to energy infrastructure several factors must be considered when any decision makers are examining and determining applications. Of these factors, one is relevant to this Project:

- The national level of need for energy infrastructure, as set out in the National Planning Framework which applies in Scotland.

2.3 Marine (Scotland) Act 2010

The Marine (Scotland) Act 2010 gained Royal Assent in 2010 and provides the legal mechanism to help protect Scotland's coastal and territorial waters through new and improved management systems (Scottish Government, 2014). The act comprises five key elements, which are:

1. A Strategic Marine Planning System;
2. Streamlined Marine Licensing System;
3. Improved Marine Nature Conservation Measures;
4. Improved Measures for the Protection of Seals; and
5. Improved Enforcement Measures.

Installation and operation of submarine cables in Scottish waters requires a Marine Licence under Part 4 of the Marine (Scotland) Act (Scottish Parliament, 2010).

2.4 Marine Licence and Supporting Information Requirements

Submarine cables do not require an Environmental Impact Assessment (EIA) to be conducted as they are not listed under Schedule A1 or A2 of The Marine Works (EIA) (Amendment) Regulations 2017 (HM Government, 2017).

The Marine Directorate advise that a Marine Licence applicant should consider the scale and nature of the submarine cable project and consider the need for a proportionate environmental assessment. This should also include the extent to which an activity is in accordance with any marine plan for the area. Where there exists the potential for the environment, human health, legitimate uses of the sea or designated sites (i.e. Emerald Network (Natura) or Marine Protected Area (MPA)) to be impacted by the Project, Marine Directorate recommends that these impacts should be assessed (Marine Scotland, 2015). The results of the assessment, along with other supporting information such as a cable-route study and cable-burial plan (if required), should be provided to Marine Directorate to support the Marine Licence Application. This MEA report presents an overview of the baseline

environment and provides the necessary environmental assessment to support the Marine Licence Application through consideration of the potential impacts of the Project to the marine environment.

2.5 Conservation (Natural Habitats, &c) Regulations 1994 (as amended in Scotland) (also known as 'The Habitats Regulations') and the Revision to The Conservation (Natural Habitats) (EU Exit) Scotland)(Amendment) Regulations 2019

The Conservation (Natural Habitats, &c) Regulations 1994 (also known as the 'Habitats Regulations') transposed the European Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC) into Scottish law. The Habitats Regulations enshrine the Habitats Regulations Appraisal (HRA) process in law, requiring that any proposal which has the potential to result in a negative Likely Significant Effect (LSE) to a European site or its designated features be subject to HRA, and if necessary Appropriate Assessment (AA). The regulations also make it an offence to deliberately or recklessly capture, kill, injure harass or disturb a EPS. When European protected species are present, licences to permit works that will affect them can only be granted when:

- There is no satisfactory alternative; and
- The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

The regulations were amended further in 2019 following the UK leaving the European Union (EU), by the Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019 (Scottish Government, 2019).

2.6 Wildlife and Countryside Act 1981 (as amended) and the Nature Conservation (Scotland) Act 2004

Basking sharks are protected under Schedule 5 of the Wildlife and Countryside Act (WCA) 1981 (as amended) which prohibits the killing, injuring or taking by any method of those wild animals listed on Schedule 5 of the Act. The Nature Conservation (Scotland) Act 2004, Part 3 and Schedule 6 make amendments to the WCA, strengthening the legal protection for threatened species to include 'reckless' acts, and specifically makes it an offence to intentionally or recklessly disturb or harass basking sharks. A derogation licence under the WCA will therefore be required for any activity which may result in disturbance or injury to basking sharks.

In addition, the primary legislation for the protection of birds in the UK is the WCA in combination with the Nature Conservation (Scotland) Act 2004. Under these acts, it is an offence to harm or disturb wild bird species, their eggs and nests. Additional protection is provided for certain bird species listed on Schedule 1 of the WCA, and it is an offence to disturb those species at their nest while it is in use. Licensing for wild birds does not cover development purposes, so any activity that could result in disturbance of a nesting Schedule 1 species should not proceed unless out-with the breeding season, unless a disturbance licence is in place. In addition, the Conservation (Natural Habitats) (European Union (EU) Exit) (Scotland) (Amendment) Regulations 2019 also instrument an amendment to Section 27 of the WCA 1981 to ensure that existing protections continue.

2.7 Protection of Seals (Designated Seal Haul-out Sites) (Scotland) Order 2014

The Protection of Seals (Designated Seal Haul-out Sites) (Scotland) Order 2014 (made in exercise of the power conferred by section 117 of the Marine (Scotland) Act 2010) made it an offence to harass a seal (intentionally or recklessly) at a designated haul-out site, with the Order designating 194 such

sites around the Scottish coastline. A haul-out site is defined as a location on land where seals come ashore at times to rest, breed, have pups or moult. Section 117 of the Marine (Scotland) Act 2010, in conjunction with this Order, is designed to offer protection to seals on land, when they are at their most vulnerable.

2.8 Scottish National Marine Plan

Adopted by the Scottish Government in March 2015 (Marine Scotland, 2015), the Scottish National Marine Plan (NMP) establishes policies and objectives to enable the sustainable development and management of Scotland's marine resources, in both Scottish inshore (out to 12 nautical mile (nm)) and offshore waters (12 to 200nm). The NMP details 21 general policies that are applicable to all future developments and uses within Scottish waters. The Scottish NMP2 is currently in development.

Relevant policies to this Project within the NMP are detailed in Table 2-1.

Table 2-1 General Policies Applicable to the Project

Policy Name	Policy Detail
GEN 1: General planning principle	There is a presumption in favour of sustainable development and use of the marine environment when consistent with the policies and objectives of this Plan.
GEN 2: Economic Benefit	Sustainable development and use which provides economic benefit to Scottish communities is encouraged when consistent with the objectives and policies of this Plan.
GEN 4: Co-existence	Proposals which enable coexistence with other development sectors and activities within the Scottish marine area are encouraged in planning and decision making processes, when consistent with policies and objectives of this Plan.
GEN 9: Natural heritage	Development and use of the marine environment must: (a) Comply with legal requirements for protected areas and protected species. (b) Not result in significant impact on the national status of Priority Marine Features. (c) Protect and, where appropriate, enhance the health of the marine area.
GEN 12: Water quality and resource	Developments and activities should not result in a deterioration of the quality of waters to which the Water Framework Directive, Marine Strategy Framework Directive or other related Directives apply.
GEN 13: Noise	Development and use in the marine environment should avoid significant adverse effects of man-made noise and vibration, especially on species sensitive to such effects.
GEN 15: Planning Alignment A	Marine and terrestrial plans should align to support marine and land-based components required by development and seek to facilitate appropriate access to the shore and sea.
GEN 16: Planning Alignment B	Marine plans should align and comply where possible with other statutory plans and should consider objectives and policies of relevant non-statutory plans where appropriate to do so.
GEN 18: Engagement	Early and effective engagement should be undertaken with the general public and all interested stakeholders to facilitate planning and consenting processes.

These general policies are supplemented by sector-specific policies, enabling policies and objectives to be targeted at particular industries. With regards to this Project, the two most relevant sectoral policy sections are sea fisheries (due to the potential impacts to local fishermen) and submarine cables.

2.8.2 Sea Fisheries

The Sea Fisheries chapter of the NMP details five marine planning policies that should be taken into account when developing within the vicinity of areas used for fishing purposes. Of these five, two are relevant to this Project and listed in Table 2-2.

Table 2-2 NMP Relevant Sea Fisheries Policies

Policy Name	Policy Detail
FISHERIES 1	Taking account of the EU's Common Fisheries Policy, Habitats Directive, Birds Directive and Marine Strategy Framework Directive, marine planners and decision makers should aim to ensure: ▪ Existing fishing opportunities and activities are safeguarded wherever possible. ▪ An ecosystem-based approach to the management of fishing which ensures sustainable and resilient fish stocks and avoids damage to fragile habitats. ▪ Protection for vulnerable stocks (in particular for juvenile and spawning stocks through continuation of sea area closures where appropriate). ▪ Improved protection of the seabed and historical and archaeological remains requiring protection through effective identification of high-risk areas and management measures to mitigate the impacts of fishing, where appropriate. ▪ That other sectors take into account the need to protect fish stocks and sustain healthy fisheries for both economic and conservation reasons. ▪ Delivery of Scotland's international commitments in fisheries, including the ban on discards. ▪ Mechanisms for managing conflicts between fishermen and/or between the fishing sector and other users of the marine environment.
FISHERIES 2	The following key factors should be taken into account when deciding on uses of the marine environment and the potential impact on fishing: ▪ The cultural and economic importance of fishing, in particular to vulnerable coastal communities. ▪ The potential impact (positive and negative) of marine developments on the sustainability of fish and shellfish stocks and resultant fishing opportunities in any given area. ▪ The environmental impact on fishing grounds (such as nursery, spawning areas), commercially fished species, habitats and species more generally. ▪ The potential effect of displacement on: fish stocks; the wider environment; use of fuel; socio-economic costs to fishers and their communities and other marine users.

2.8.3 Submarine Cables

Relevant objectives to this Project listed in the NMP regarding submarine cables include:

- Protect submarine cables whilst achieving successful seabed user co-existence;
- Achieve the highest possible quality and safety standards and reduce risks to all seabed users and the marine environment; and
- Support the generation, distribution, and optimisation of electricity from traditional and renewable sources to Scotland, UK and beyond.

In addition to these objectives, the NMP details four planning policies to be considered in the development of new submarine cable projects and are listed in Table 2-3.

Table 2-3 NMP Relevant Submarine Cables Policies

Policy Name	Policy Detail
CABLES 1	Cable and network owners should engage with decision makers at the early planning stage to notify of any intention to lay, repair or replace cables before routes are selected and agreed. When making proposals, cable and network owners and marine users should evidence that they have taken a joined-up approach to development and activity to minimise impacts, where possible, on the marine historic and natural environment, the assets, infrastructures and other users. Appropriate and proportionate environmental consideration and risk assessments should be provided which may include cable protection measures and mitigation plans. Any deposit, removal or dredging carried out for the purpose of executing emergency inspection or repair works to any cable is exempt from the marine licensing regime with approval by Scottish Ministers. However, cable replacement requires a marine licence. Marine Licensing Guidance should be followed when considering any cable development and activity.

Policy Name	Policy Detail
CABLES 2	The following factors will be taken into account on a case by case basis when reaching decisions regarding submarine cable development and activities: ▪ Cables should be suitably routed to provide sufficient requirements for installation and cable protection. ▪ New cables should implement methods to minimise impacts on the environment, seabed and other users, where operationally possible and in accordance with relevant industry practice. ▪ Cables should be buried to maximise protection where there are safety or seabed stability risks and to reduce conflict with other marine users and to protect the assets and infrastructure. ▪ Where burial is demonstrated not to be feasible, cables may be suitably protected through recognised and approved measures (such as rock or mattress placement or cable armouring) where practicable and cost-effective and as risk assessments direct. ▪ Consideration of the need to reinstate the seabed, undertake post-lay surveys and monitoring and carry out remedial action where required.
CABLES 3	A risk-based approach should be applied by network owners and decision makers to the removal of redundant submarine cables, with consideration given to cables being left in situ where this would minimise impacts on the marine historic and natural environment and other users.
CABLES 4	When selecting locations for land-fall of power and telecommunications equipment and cabling, developers and decision makers should consider the policies pertaining to flooding and coastal protection, and align with those in Scottish Planning Policy and Local Development Plans.

2.8.4 Shipping, Ports, Harbours and Ferries

The Transport section of the NMP details Transport policies that should be taken into account when within the vicinity of areas used for shipping and transport. The relevant objectives to this Project listed in the NMP regarding submarine cables are listed in Table 2-4.

Table 2-4 NMP Relevant Shipping, Ports, Harbours and Ferries Policies

Policy Name	Policy Detail
TRANSPORT 1	Navigational safety in relevant areas used by shipping now and in the future will be protected, adhering to the rights of innocent passage and freedom of navigation contained in UN Convention on the Law of the Sea (UNCLOS). The following factors will be taken into account when reaching decisions regarding development and use: ▪ The extent to which the locational decision interferes with existing or planned routes used by shipping, access to ports and harbours and navigational safety. This includes commercial anchorages and defined approaches to ports. ▪ Where interference is likely, whether reasonable alternatives can be identified. ▪ Where there are no reasonable alternatives, whether mitigation through measures adopted in accordance with the principles and procedures established by the International Maritime Organization can be achieved at no significant cost to the shipping or ports sector.
TRANSPORT 6	Marine planners and decision makers and developers should ensure displacement of shipping is avoided where possible to mitigate against potential increased journey lengths (and associated fuel costs, emissions and impact on journey frequency) and potential impacts on other users and ecologically sensitive areas.

2.9 Scottish Marine Regions

After multiple years of public consultation and specialist studies establishing the support for, and potential areas of marine regions in Scottish waters (Scottish Government, 2015), the Scottish Marine Regions Order 2015 came into force on the 13th May 2015 and details the boundaries of the final 11 Scottish marine regions (Scottish Government, 2015). The Project is in Argyll region of Scotland.

Regional Marine Plans will be developed by Marine Planning Partnerships, allowing more local ownership and decision making about specific issues within their area. Within these marine regions, Regional Marine Plans will be developed by Marine Planning Partnerships. These partnerships will comprise of groups of local marine stakeholders, allowing for more focused decision making by the local community to target the issues specific to each marine region.

Regional Marine Plans: The NMP sets the wider context for planning within Scotland, including what should be considered when creating local, regional marine plans. Eleven Scottish Marine Regions have been created which cover sea areas extending out to 12nm. The Argyll Regional Marine Plan is yet to be developed, but will be consistent with the NMP and reflect the economic and environmental needs and sensitivities of their area.

2.9.1 Argyll and Bute Council Local Development Plan 2

The Argyll and Bute Local Development Plan 2 outlines the planning framework for the Council area, excluding the Loch Lomond and Trossachs National Park. It consists of two main components:

1. The Written Statement: This establishes the general policies for assessing planning applications for new developments.
2. Proposals Maps: These provide a visual representation of development opportunities and constraints, highlighting:
    - Key development zones (e.g., housing, industry, business, community facilities, and infrastructure).
    - Potential Development Areas for future projects.
    - Areas needing environmental improvement or regeneration (Areas for Action).
    - Environmental designations such as National Scenic Areas, Sites of Specific Scientific Interest (SSSIs), Special Protection Areas, and Local Nature Conservation Sites.

The Argyll and Bute Local Development Plan 2 was adopted on 28th February 2024, and replaces the Argyll and Bute Local Development Plan 2015 and its associated Supplementary Guidance (March 2016), and Supplementary Guidance 2 (December 2016).

2.10 Marine Wildlife Watching Code

NatureScot developed the Code as part of its duties under the Nature Conservation (Scotland) Act 2004. The Code was first published in 2006 and was revised in 2017 in light of recent legislation. The Code isn't a law or a regulation. Its main purpose is to raise awareness and offer practical guidance for responsible marine wildlife watching. The Code aims to:

- Help minimise disturbance to marine wildlife;
- Helps the public and organisations to enjoy watching marine wildlife;
- Improve the chances of seeing wildlife;
- Provide a standard for the wildlife watching industry; and
- Help you to stay within the law.

Prior to operations taking place all vessel crew will be made aware of all protected species within the marine environment through the following guidance; the Marine Conservation Society (MCS) Basking Shark Code of Conduct and good practice measures for boat control near basking sharks and the Scottish Marine Wildlife Watching Code and Guide to Best Practice for Watching Marine Wildlife. More information on this is provided in the CEMP (Appendix E).

3. PROJECT DESCRIPTION

This Section provides an overview of the activities associated with installation of the replacement cable and management of crossings of other cables across the route. A detailed Project description is provided in Appendix A of this MEA.

The Coll-Tiree cable is located in Gunna Sound, between the islands of Coll and Tiree, Scotland. The replacement cable is approximately 4.3km in length and routes from the beach at Tràigh Gharb on Coll. The proposed replacement cable will traverse the sandy beach and intertidal zone before entering the foreshore area. The cable will be carefully micro-routed within the intertidal zone to avoid rock outcrops. Offshore, the cable will cross Gunna Sound, where routing will account for boulders, OOS cables, and the in-service cable. As the route approaches Tiree, it will pass through a boulder field before making landfall on the beach at Port Ruadh, Tiree.

The Application Corridor within which the cable will be installed is 177m wide at its narrowest point and 530m at its widest point to allow for flexibility in route engineering. The Application Corridor is shown in Figure 1-1 of this MEA, with the co-ordinates of the corridor being provided in Table 3-1.

Table 3-1 Application Corridor Simplified Co-ordinates

WGS 84 UTM Zone 30N	
Latitude	**Longitude**
56° 33.726' N	6° 42.380' W
56° 33.511' N	6° 42.713' W
56° 33.496' N	6° 42.791' W
56° 32.880' N	6° 43.997' W
56° 32.767' N	6° 44.492' W
56° 32.720' N	6° 44.640' W
56° 33.136' N	6° 43.393' W
56° 34.096' N	6° 42.025' W
56° 34.079' N	6° 42.034' W
56° 34.038' N	6° 42.069' W
56° 33.857' N	6° 42.233' W
56° 33.626' N	6° 42.025' W
56° 33.996' N	6° 41.854' W
56° 34.026' N	6° 41.886' W
56° 34.149' N	6° 41.974' W
56° 34.172' N	6° 41.947' W
56° 32.860' N	6° 43.406' W
56° 32.913' N	6° 43.062' W
56° 33.474' N	6° 42.245' W
56° 32.621' N	6° 44.546' W
56° 34.191' N	6° 41.927' W
56° 34.153' N	6° 41.853' W
56° 34.102' N	6° 41.820' W

56° 33.726' N	6° 42.380' W

A summary of the installation activities considered by this assessment is detailed below, with further detail provided in Appendix A of this MEA. The marine cable will be surface laid with cable stabilisation and protection measures employed, but burial is planned at both landfalls and potentially in areas of sand ripples towards the Coll end of the route.

The installation activities will comprise of:

- A Pre-Lay Grapnel Run (PLGR) which may be required prior to operations commencing to remove any boulders or debris which may cause abrasion/disturbance;
- Surface laying of subsea cable using a cable lay vessel (CLV) with onshore trenching to the Transition Joint Pit (TJP);
- Use of a remotely operated vehicle (ROV) and associated Ultra-Short Baseline (USBL) positioning systems for pre- and post- lay survey works;
- Use of articulated pipe in the intertidal and nearshore zones, potentially across deeper section of Gunna Sound and at cable crossing near Gunna island, for cable protection and stabilisation.
- Use of rock bags, clump weights and rock anchors in the offshore sections for cable protection and stabilisation, and concrete earthing clump weights for the surface laid sections of earthing wires, and;
- Associated vessel presence.

4. ASSESSMENT METHODOLOGY

4.1 Assessment Criteria

The environmental assessment presented in this document reports on the impacts associated with the licensable activities of the cable installation process and presents its findings and conclusions. The key stages of the assessment process are listed as follows and align with the Institute of Environmental Management & Assessment (2004) guidelines which state, "*The assessment stage of the Environmental Impact Assessment (EIA) should follow a clear progression; from the characterisation of 'impact' to the assessment of the significance of the effects including the evaluation of the sensitivity and value of the receptors*." (p11/2) (IEMA, 2004):

- Characterisation of the baseline environment;
- Establish potential impacts from the Project and zone of influence (ZoI);
- Characterisation of the change in impact;
- Evaluation of significant of effects; and
- Establish mitigation.

ZoIs have been identified regarding the spatial extent over which the activities of the Project are predicted to have an impact on the receiving environment. These are referred to in topic chapters and identify the extent of assessment and include mobile species or mobile users of the sea with the potential to enter the ZoI.

4.1.1 Pressure Identification

Pressures are the mechanism through which an activity has an effect on any part of the ecosystem. The nature of the pressure is determined by the activity type, intensity and distribution. A list of marine physical/chemical and biological pressures and their definitions has been formally agreed by the OSPAR Intersessional Correspondence Group on Cumulative Effects (ICG-C) (OSPAR, 2016) and has been used in this assessment. The ICG pressure list does not include human pressures, and therefore, categories have been developed based on industry experience. In order to identify the appropriate pressures on biological features the following guidance has been considered:

- JNCC Marine Pressures and Activity database (PAD v1.5) (JNCC, 2022); and
- Feature Activity Sensitivity Tool (FEAST) for identifying the sensitivity of marine habitats and features to the effects of cable installation (Marine Scotland, 2021).

Biological receptors which have protected status have been fully considered in Chapter 5 (Protected sites) and summarised in the biological Sections of this MEA report.

The interaction of the Project with other sea users has been considered within Appendix B – Argyll FLMAP and referred to accordingly in the human environment Sections of this MEA report.

4.1.2 Evaluation of Significance

Effects only occur when an impact is present within an environment that is sensitive to it. An impact is the consequence of the pressure i.e. a predicted change in the baseline environment. The effect is the consequence of the impact and is usually measurable.

If appropriate, and typically based on the findings of supporting studies, pressures have been screened out for further assessment in the MEA. The screening decision and justification is provided in Section 4.4, Table 4-2.

In assessing the significance of the effect, the magnitude (the spatial extent of the impact, the duration and frequency) and sensitivity, recoverability and importance of the receptor are considered. The following definitions of significance, as adapted from the Environment Protection Agency (EPA) (2017) have been used in the assessment:

- **Imperceptible** – An effect capable of measurement but without significant consequences.
- **Not Significant** – An effect which causes noticeable changes in the character of the environment but without significant consequences.
- **Slight** – An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
- **Moderate** – An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
- **Significant** – An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
- **Very Significant** – An effect which, by its character, magnitude, duration or intensity alters most of a sensitive aspect of the environment.
- **Profound** – An effect which obliterates sensitive characteristics.

Effects which are Imperceptible, Not Significant and Minor typically do not require mitigation measures other than compliance with environmental statute and best practice. Effects which are classified as Moderate or above would typically be unacceptable without the implementation of Project specific mitigation designed to avoid, abate or reduce the significance of the effect.

4.2 Mitigation Requirements

Certain measures are incorporated into the Project design as adherence to standard industry best practices or embedded mitigation which is fundamental to how the Project will be executed. Details of the embedded mitigation (EM) which SHEPD are committed to implementing, and hence has been considered by this MEA are presented in Table 4-1. All EM will be included within the CEMP. Additional mitigation has been suggested on a receptor specific basis informed by the impact assessments. During the assessment of impacts in the receptor specific assessment chapters, all proposed mitigation is considered when assessing the significance of an impact.

Table 4-1 Embedded Mitigation and Best Practice Measures Relevant to the Project

I.D	Measure	Details
EM1	Environmental planning.	The final cable route will be optimised as part of the final engineering design to avoid or minimise impacts on sensitive environmental features, including Annex I habitats and wrecks insofar as possible. Cable protection methods and quantities will be carefully selected and considered to minimise any potential impact on environmentally sensitive habitats.
EM2	Scottish Marine Wildlife Watching Code (SMWWC).	All vessels will adhere to the provisions of the SMWWC during installation works. NatureScot developed the Code as part of its duties under the Nature Conservation (Scotland) Act 2004. The Code was first published in 2006 and was revised in 2017. The code aims to minimise disturbance to marine wildlife.
EM3	Marine Mammal Protection Plan.	All works will be undertaken in accordance with the Marine Mammal Protection Plan. This includes the potential required use of Marine Mammal Observer (MMO) and Passive Acoustic Monitoring system operatives.

I.D	Measure	Details
EM4	Vessels will be travelling at a slow speed during installation works.	The slow speed of installation vessels will minimise the risk of disturbance and injury impacts to seabird, marine mammal and basking shark receptors.
EM5	All project personnel will be trained and informed of their responsibility to implement the environmental and ecological mitigation outlined in the CEMP.	Toolbox talks, inductions, and awareness notices will be used to disseminate this information among all relevant project personnel.
EM6	Otter survey.	Otter surveys have indicated that there are no qualifying features within 200m of the works that would require a licence to be in place. A pre-construction survey will be carried out prior to the works. Mitigation measures will be detailed in the onshore CEMP, and SPP plans and adhered to.
EM7	Lighting on board will be kept to a minimum.	Lighting on-board the cable installation vessel will be kept to the minimum level required to ensure safe operations. This will minimise disturbance to seabird species.
EM8	Stakeholder engagement.	Continuing effective positive liaison with all interested parties through the pre-construction, construction and operational phases of the cable replacement.
EM9	Notice to Mariners (including local), Kingfisher bulletins, Radio Navigational Warnings, NAVTEX, and/or broadcast warnings will be promulgated in advance of any proposed works. The notices include the time and location of any work being carried out, and emergency event procedures.	Ensure navigational safety and minimise the risk and equipment snagging.
EM10	EPS and Basking Shark Licence	Obtain EPS and Basking Shark Licences and adhere conditions prior to construction works.
EM11	Automatic Identification Systems (AIS) Tracking.	The cable installation vessel has will have AIS as a legal requirement.
EM12	Safety zone.	Implementation of safety zones (of up to 500m) around the cable lay vessel will reduce the risk of collision between the cable laying vessel and other vessels transiting the area.
EM13	Fishing Industry Representatives (FIR) and Standard operating procedures (SOP).	Should a FIR not be present on a vessel, the Fishing Gear Interaction SOP will be followed as provided in Appendix A of the FLMAP.
EM14	Consultation.	Early consultation with relevant contacts to notify of impending activity.
EM15	Compliance with International Regulations for the Prevention of Collision at Sea 1972 (COLREGs) and the International Regulations for the Safety of Life at Sea 1974 (SOLAS).	COLREGs are the international standards designed to ensure safe navigation of vessels at sea. All installation vessels will adhere to these rules, including displaying appropriate lights and shapes. SOLAS is an international maritime treaty which sets minimum safety standards in the construction, equipment and operation of merchant ships. The convention requires signatory flag states to ensure that ships flagged by them comply with at least these standards. In relation to the Project its compliance will ensure navigational safety.
EM16	As built survey data will be provided to the UK Hydrographic Office (UKHO) and Kingfisher for	Ensure navigational safety and minimise the risk and equipment snagging.

I.D	Measure	Details
	inclusion on Admiralty Charts and Kingfisher Information Service – Offshore Renewable & Cable Awareness project (KIS-ORCA) Awareness Charts.	
EM17	Guard vessel (if required).	A guard vessel may be used where a risk to the asset or a danger to navigation has been identified.
EM18	Cable protection.	Any cable protection installed will ensure any reductions to the navigable depth in the area are below 5%, unless discussed with and approved by MCA in advance.
EM19	A Fisheries Liaison Officer (FLO) will be employed to manage interactions between cable installation vessels, personnel, equipment and fishing activity. This will be managed through the Fisheries Liaison Mitigation Action Plan (Appendix B).	Employment of a FLO will ensure all commercial fisheries operators in the vicinity of the Project will be proactively and appropriately communicated with in terms of proposed Project operations including exclusions, dates and durations.
EM20	Avoidance over the cable.	Guidance provided by the UKHO and International Convention for the Safety of Life at Sea (SOLAS) recommend that fishing vessels should avoid trawling over installed seabed infrastructure (UKHO 2020). Vessels are advised in the Mariners Handbook not to anchor or fish (trawl) within 500 m of the cable.
EM21	Potential Unexploded Ordnance (pUXO).	If pUXO items are discovered during any phase of the Project, the location of the item will be recorded and immediate advice sought from relevant authorities. Munitions awareness briefings will be given to all relevant personnel.
EM22	Marine Archaeology Management Plan.	All works will be undertaken in accordance with the Marine Archaeology Management Plan.
EM23	Archaeological mitigation during installation.	If required by licence condition, a Protocol for Archaeological Discoveries (PAD) based on the Crown Estate's PAD reporting protocol (2014) may be implemented. The use of vessels with Dynamic positioning (DP) systems rather than anchors will further prevent accidental impact.
EM24	Ballast water discharges from vessels will be managed under International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention).	The BWM Convention, adopted in 2004, aims to prevent the spread of harmful aquatic organisms from one region to another, by establishing standards and procedures for the management and control of ships' ballast water and sediments. Measures will be adopted to ensure that the risk of Invasive Non-Native Species (INNS) introduction during cable installation works is minimised.
EM25	Vessels will be equipped with waste disposal facilities (sewage treatment or waste storage) to IMO MARPOL Annex IV Prevention of Pollution from Ship standards.	Measures will be adopted to ensure that the potential for release of pollutants from installation vessels is minimised.
EM26	Control measures and shipboard oil pollution emergency plans (SOPEP) will be in place and adhered to under The International Convention for the Prevention of Pollution from Ships (MARPOL) Annex I requirements for all	As per the MARPOL 73/78 requirement under Annex I, all ships with 400 Giga Tonne (GT) and above must carry an oil prevention plan as per the norms and guidelines laid down by International Maritime Organization (IMO) under Marine Environmental Protection Committee (MEPC) act.

I.D	Measure	Details
	vessels. In the event of an accidental fuel release occurring appropriate standard practice management procedures will be implemented accordingly.	Production of this plan will help to ensure that the potential for release of pollutants from construction, operation and decommissioning is minimised.
EM27	Monitoring and Reporting Plan.	To ensure works are carried out as per legislation, consent and licence conditions and in line with the *Employer* requirements monitoring and reporting of activities is to be undertaken in accordance with Monitoring and Reporting Plan, including completion of the Vessel Audit – Environmental Compliance Checklist.
EM28	Pre installation equipment checks.	All equipment will be checked and recorded prior to the commencement of installation activities to ensure that following completion of the cable installation all equipment has been recovered. The list of checks is to be determined during the Hazard Identification and Risk Assessment (HIRA) process prior to commencement of the works.
EM29	Post installation equipment checks.	Upon completion of the cable installation operation, post installation equipment checks will be completed to confirm that all equipment has been recovered in its entirety and no unlicenced deposits in the marine environment result from the Project operations. The list of checks is to be determined during the HIRA process prior to commencement of the works.
EM30	Production and implementation of a marine CEMP	Measures will be adopted to ensure environmental impacts are minimised, and to reduce the potential for release of pollutants from installation works. This will be informed by the results of this MEA.
EM31	Dropped objects	Licensees must report dropped object incidents to the nearest local coastguard station by telephone at the first opportunity. In instances where the dropped object poses a hazard to other mariners, a Notice to Mariners will be issued to alert relevant parties. To ensure other sea users are aware of any hazard, incidents must also be reported through is reported no later than 24 hours after the event a Marine Scotland Directorate – DROPOB1 - Offshore Wind & Marine Renewables Dropped Objects Form.
EM32	Rafting seabirds.	The installation vessel will be slow moving (less than 4 knots), which will allow any rafting birds time to disperse. When not completing operational activities, vessels will avoid bird rafts where operationally possible, and it is safe to do so.
EM33	Breeding and nesting birds.	For any nesting or protected breeding populations in close proximity to the Application Corridor or the landfall, further consultation will be undertaken with NatureScot on the requirement for any seasonal restriction to be implemented for cable installation in order to avoid disturbance to qualifying species.
EM34	Deployment of anchor chains and spud legs will be kept to a minimum.	Reduces the potential for disturbance to benthic habitats and species including those which utilise the seabed
EM35	Preconstruction surveys will be conducted to inform detailed route engineering.	Appropriate preconstruction geophysical surveys and visual inspection will be conducted to confirm the locations of potentially sensitive features

I.D	Measure	Details
EM36	Production of an Emergency Spill Response Plan.	An Emergency Spill Response Plan will help to ensure that the potential for release of pollutants from cable installation works is minimised
EM37	Communication of project details	Details of the schedule for cable lay activities to local ports, ship operators, Calmac Ferries, fishermen and recreational sailing organisations will be communicated through Notice to Mariners.
EM38	Basking Shark Code of Conduct	All vessels will adhere to the Basking Shark Code of Conduct to minimise potential disturbance to basking shark.
EM39	Vessels will be travelling at a slow speed during installation works.	The slow speed of installation vessels will minimise the risk of disturbance and injury impacts to seabird and marine mammal receptors.

4.3 Cumulative Impact Assessment

Information sources used to inform the potential cumulative effects that may be occurring in the region included the following:

- SEAFISH Kingfisher Bulletin;
- North Sea Transition Authority (NSTA): Oil and gas industry information;
- KIS-ORCA: Marine cables information;
- The Crown Estate Website: Offshore wind farm and marine aggregate digital data; and
- Marine Scotland: Marine licensing website.

The MEA will examine potential cumulative impacts of the replacement distribution cable between Coll and Tiree and other plans and projects. It will also include the interactions with other environmental topics and inter-project interactions, for example the interaction of the offshore infrastructure with the onshore infrastructure which may share the same ZoI. However, considering the extremely localised nature of the effects likely to be associated with the proposed cable installation activities, no potential cumulative effects were identified, and no further assessment is required.

4.4 Pressure Identification, Zones of Influence and Screening

As detailed in Section 4.1.2 above, the pressures considered in this assessment have been identified from the ICG-C pressure list (OSPAR, 2016) in addition to review of the JNCC Pressure Activity Database (JNCC, 2022) and the FeAST tool for identifying the sensitivity of marine habitats and features to the effects of cable installation (Marine Scotland, 2023). Several pressures have been identified for each topic area as outlined in Table 4-2. For each pressure identified, Table 4-2 presents any applicable embedded mitigation, the installation footprint and associated zone of influence and a screening decision as to whether assessment within the MEA is required.

Table 4-2 Pressures, Zone of Influence and Screening Decision

Receptor	Sensitivity of receptor to pressure	Dimensions of pressure footprint	Applicable embedded mitigation and best practice measures	Further assessment required	Reference
Physical change (to another substratum)					
Sediment quality	Low – sensitive features have been micro-routed around.	Cable 4300m x 0.133m = 571.9m^2 Clump weights 10 x 1m^2 = 10m^2 Earthing clump weights 20 x 0.5m^2 = 10m^2 Sections of the above cable will have increased dimensions to their footprint: Cast iron split pipe (articulated pipe) 3050m x 0.26m = 1000m^2 along a route length of 4300m Concrete mattresses 3m x 6m (x9 mattresses) = 162m^2 along a route length of 4300m Rock bags (MWLS to 10m Lowest Astronomical Tide LAT)) 2.2m diameter (60bags) across an area of 4300m Rock bags (below 10m LAT) 2.8m diameter (60 bags) across an area of 4300m	The final cable route and positioning or rock, protective material or armouring will be optimised as part of the final engineering design to avoid impacts on sensitive environmental features, including Annex I, II, PMF and wrecks so far as possible. Anchor chain-spud leg deployments will avoid areas of seagrass beds.	Yes	Section 6
Benthic and intertidal ecology	High – Priority Marine Features (PMF) habitats including 'Seagrass Beds', 'Kelp Beds' and 'Kelp and Seaweed Communities on Sublittoral Sediment' are present in the Application Corridor and are highly sensitive.			Yes	Section 8
Abrasion / disturbance at the surface of the substratum					
Protected Sites and Species	Medium – the Application Corridor is contained within five protected sites .	Cable 4300m x 0.133m = 571.9m^2 Clump weights 10 x 1m^2 = 10m^2 Earthing clump weights 20 x 0.5m2 = 10m^2 Intertidal trench:	The cable will be stabilised to prevent movement and abrasion. All wrecks or features of archaeological significance will be avoided by a buffer of ≥50 m during detailed route design. The locations of wrecks and features of archaeological significance will be identified on		
Sediment quality	Low – works will not disturb submerged sediments or result in sediment suspension greater that that caused by natural wave action.			Yes	Section 6

Receptor	Sensitivity of receptor to pressure	Dimensions of pressure footprint	Applicable embedded mitigation and best practice measures	Further assessment required	Reference
Benthic and intertidal ecology	High – Priority Marine Features (PMF) habitats including 'Seagrass Beds', 'Kelp Beds' and 'Kelp and Seaweed Communities on Sublittoral Sediment' are present in the Application Corridor and are highly sensitive.	Coll: 250m x 0.8m = 200m^2 Tiree: 300m x 0.8m = 240m^2 Cast iron split pipe (articulated pipe) 3050m x 0.26m = 1000m2 along a route length of 4300m Concrete mattresses 3m x 6m (x9 mattresses) = 162m^2 along a route length of 4300m Rock bags (MWLS to 10m LAT) 2.2m diameter (60bags) across an area of 4300m Rock bags (below 10m LAT) 2.8m diameter (60 bags) across an area of 4300m	electronic charts onboard the installation vessel and will be utilised to guide installation operations. The locations of any wrecks or features of archaeological significance will be provided to Historic Environment Scotland and the UKHO. If required by a condition of the Marine Licence, The Crown Estate's 'Protocol for Archaeological Discoveries' (The Crown Estate, 2014) will be implemented during installation works. If pUXO items are discovered during any phase of the Project, the location of the item will be recorded, and immediate advice sought from relevant authorities. Munitions awareness briefings will be given to all relevant personnel. Deployment of anchor chains will be kept to a minimum, and if possible sited to avoid PMF habitats using survey data.	Yes	Section 8
Marine archaeology	Low – there are minimal archaeological artefacts in close proximity to the Application Corridor.			Yes	Section 10
Unexploded Ordnance (UXO) and existing utilities	Low – as no trenching will take place in the marine area, works are considered unlikely to disturb any UXO			Yes	Section 12
Water flow (tidal current) changes – local					
Water quality	Low – No changes to local currents within the Application Corridor will occur.	No change to water flow (tidal current) expected	N/A	No	N/A
Changes in suspended solids (water clarity)					
Water quality	Medium – The majority of works will not disturb submerged sediments or result in sediment suspension greater that that caused by natural wave action, however the potential use of a diver-operated dredge or controlled flow excavator (CFE) at sandwave locations may cause disturbance beyond this.	Sediment is expected to settle within 100m of the Application Corridor (Gooding *et al.*, 2012). Fine material will be rapidly diluted and dispersed in the water. Far field deposition is predicted to be less than 1mm for both trenching by jetting and ploughing.	N/A	N/A	N/A

Receptor	Sensitivity of receptor to pressure	Dimensions of pressure footprint	Applicable embedded mitigation and best practice measures	Further assessment required	Reference
Sediment quality	Low – burial will take place in the intertidal area. However, Intertidal excavation will be done at low tide which will reduce any potential for suspended solids.				
UXO and existing utilities	Low – burial will take place in the intertidal area, works are considered unlikely to disturb any UXO.				
Penetration and / or disturbance of the substrate below the surface of the seabed					
Sediment quality	Medium – The majority of works will not disturb submerged sediments, however the potential use of a diver operated dredge or CFE at sandwave locations may cause disturbance below the surface.	Two or four spud legs will penetrate the seabed across a diameter of up to 914mm. They can only be deployed in a maximum water depth of 13m. Up to four anchors (2.6m max width) and mooring chains (54m max length) = 561.6m^2 Jack-up barge – leg diameter of 0.76m = 3.04m^2. Sediment is expected to settle within 100m of the Application Corridor (Gooding *et al.*, 2012).	Deployment of spud legs will be kept to a minimum. Deployment of any mooring spreads will be kept to a minimum to reduce disturbance to the seabed.	Yes	Section 6
Benthic and intertidal ecology	High – Priority Marine Features (PMF) habitats including 'Seagrass Beds', 'Kelp Beds' and 'Kelp and Seaweed Communities on Sublittoral Sediment' are present in the Application Corridor and are highly sensitive.			Yes	Section 8
Marine archaeology	Medium - The majority of works will not disturb submerged sediments, however the potential use of a diver operated dredge or CFE at sandwave locations may cause disturbance below the surface			Yes	Section 10
UXO and existing utilities	Medium - The majority of works will not disturb submerged sediments, however the potential use of a diver operated dredge or CFE at sandwave locations may cause disturbance below the surface.			Yes	Section 11

Receptor	Sensitivity of receptor to pressure	Dimensions of pressure footprint	Applicable embedded mitigation and best practice measures	Further assessment required	Reference
Smothering and siltation rate changes					
Benthic and intertidal ecology	High – PMF habitats are present in the Application Corridor and are highly sensitive.	Sediment is expected to settle within 100m of the Application Corridor (Gooding *et al*., 2012). Fine material will be rapidly diluted and dispersed in the water.	N/A	Yes	Section 8
Accidental hydrocarbon or chemical release from installation vessel					
Benthic and intertidal ecology	Medium – PMF habitats present in the Application Corridor may be susceptible to accidental releases.	Within the Application Corridor.	Best practice and compliance measures will be in place to minimise the likelihood of any accidental releases and provide an action plan if they do occur to minimise any effects.	Yes	Section 8
Introduction or spread of invasive / non-native species					
Benthic and intertidal ecology	Medium – PMF habitats present in the Application Corridor may be susceptible to invasive or non-native species.	Immediately within the vicinity of the Application Corridor.	Best practice and compliance measures will be in place to minimise the likelihood of any INNS from Project vessels or equipment.	Yes	Section 8
Underwater noise changes					
Protected sites and species	High - due to the Application Corridor passing through/in the vicinity of protected sites designated for basking shark, pinniped and cetacean species.	Immediately within the vicinity of the Application Corridor.	All works will be undertaken in accordance with the Marine Mammal Protection Plan. All vessels will adhere to the provisions of the Scottish Marine Wildlife Watching Code (NatureScot, 2017). All installation operations will be conducted at slow vessel speeds of less than 4 knots. Installation personnel will be made aware of all protected species within the marine environment, and their responsibility to implement the mitigation in this document	Yes	Section 5
Marine megafauna	High - due to known presence of basking shark, pinniped and cetacean species within/in the vicinity of the Application Corridor.			Yes	Section 7
Visual (and above water noise) disturbance					

Receptor	Sensitivity of receptor to pressure	Dimensions of pressure footprint	Applicable embedded mitigation and best practice measures	Further assessment required	Reference
Protected sites and species	High – Due to the Application corridor passing within/in the vicinity of protected sites.	Within the Application Corridor.	The duration of the works will be limited, ensuring any potential visual and above water noise disturbance effect is temporary in nature. Vessel speeds will be slow moving. Vessels will avoid Skerrie where terns are thought to breed (located approximately 200m north of cable route) during the breeding season from (May to August). Disturbance licences will be obtained where required and all conditions adhered to.	Yes	Section 5
Ornithology	Medium – due to the presence of breeding common eider and breeding terns in the vicinity of the Application Corridor.			Yes	Section 9
Vessel presence					
Protected sites and species	High - due to the Application Corridor passing within/in the vicinity of protected sites	Within the Application Corridor. 200m-400m either side of the Application Corridor	All vessels will adhere to the SMWWC, slow vessel speed, disturbance licence(s) as required. All installation operations will be conducted at slow vessel speeds of less than 4 knots. Vessels will avoid Skerrie where terns are thought to breed (located approximately 200m north of cable route) during the breeding season from (May to August).	Yes	Section 5
Marine megafauna	Medium – due to the presence of protected basking shark, pinniped, cetacean and bird species within/in the vicinity of the Application Corridor.			Yes	Section 7
Ornithology	Medium – due to the presence of common eider and breeding terns in the vicinity of the Application Corridor.			Yes	Section 9
Changes in supporting habitat and prey availability					
Ornithology	Low - there will be no significant loss of fish and benthic species during cable installation.	N/A	N/A	No	N/A
Marine megafauna	Low – Cetacean utilise sound and vision to locate prey items. There will be no significant loss of fish and benthic species during cable installation.			No	N/A

Receptor	Sensitivity of receptor to pressure	Dimensions of pressure footprint	Applicable embedded mitigation and best practice measures	Further assessment required	Reference
	Cetacean echolocation of prey items will mean that prey availability is not impaired during cable installation. Pinniped also use sight to locate prey items. The duration of sediment suspension will not be significant to pinniped species. The footprint of installation is not sufficient to reduce the available prey items within the region.				
Death or injury by collision					
Protected sites and species	Low – due to the low speed of the vessels, along with the limited spatial and temporal extent of the installation vessels within the Application Corridor	Vessel path within the Application Corridor.	Vessels will be travelling at low speed during installation work. The MCS Basking Shark Code of Conduct the Scottish Marine Wildlife Watching Code and Guide to Best Practice for Watching Marine Wildlife will be followed to minimise collision risk to any marine megafanua. Notice to Mariners (including local), Kingfisher bulletins, and/or broadcast warnings will be promulgated in advance of any proposed works. The notices include the time and location of any work being carried out, and emergency event procedures. Compliance with International Regulations for the Prevention of Collision at Sea (IRPCS) (IMO, 1972) and the International Regulations for the Safety of Life at Sea (SOLAS).	Yes	Section 5
Marine megafauna	Low – due to the low speed of the vessels, along with the limited spatial and temporal extent of the installation vessels within the Application Corridor			Yes	Section 7
Commercial fisheries and other sea users	Low – due to the low speed of the vessels, along with the limited spatial and temporal extent of the installation vessels within the Application Corridor.			N/A	N/A
Temporary displacement / restricted access					
Commercial fisheries and other sea users	Medium – Gunna Sound is narrow so may restrict movement, but vessels will be operating at low speeds in a limited spatial and temporal extent within the Application Corridor.		Notice to Mariners (including local), Kingfisher bulletins, Radio Navigational Warnings, NAVTEX, and/or broadcast warnings will be promulgated in advance of any proposed works. The notices include	Yes	Section 11

Receptor	Sensitivity of receptor to pressure	Dimensions of pressure footprint	Applicable embedded mitigation and best practice measures	Further assessment required	Reference
Shipping and navigation	Medium – Gunna Sound is narrow so may restricted movement, but vessels will be operating at low speeds in a limited spatial and temporal extent within the Application Corridor.		the time and location of any work being carried out, and emergency event procedures. Compliance with IRPCS (IMO, 1972) and the International Regulations for the SOLAS.	Yes	Section 13
Vessel collisions					
Shipping and navigation	Low – due to the low density of transiting vessels in the Sound and potential requirement for existing vessels to have to re-route around project vessel thus creating pinch points.	Within the Application Corridor.	Notice to Mariners (including local), Kingfisher bulletins, Radio Navigational Warnings, NAVTEX, and/or broadcast warnings will be promulgated in advance of any proposed works. The notices include the time and location of any work being carried out, and emergency event procedures. Compliance with IRPCS (IMO, 1972) and the International Regulations for the SOLAS.	Yes	Section 13
Loss of fishing ground					
Commercial fisheries and other sea users	Medium - There is potential for the presence of installation vessels to restrict access to fishing grounds or to cause fishing vessels to deviate from their typical navigation route, resulting in a loss of earnings, additional fuel costs or disruption of normal fishing activities	Within Application Corridor		Yes	Section 11
Increased snagging risk					
Commercial fisheries and other sea users	Low - there is the potential for interaction between the cable and these types of fisheries activities. However, fisheries activity within the Application Corridor is reported to be low and as such impacts are expected to be minimal	Immediately within the Application Corridor.	Notice to Mariners (including local), Kingfisher bulletins, Radio Navigational Warnings, NAVTEX, and/or broadcast warnings will be promulgated in advance of any proposed works. The notices include the time and location of any work being carried out, and emergency event procedures. Compliance with IRPCS (IMO, 1972) and the International Regulations for the SOLAS.	Yes	Section 11

Receptor	Sensitivity of receptor to pressure	Dimensions of pressure footprint	Applicable embedded mitigation and best practice measures	Further assessment required	Reference
			As built survey data will be provided to the UKHO and Kingfisher for inclusion on Admiralty Charts and KIS-ORCA Awareness Charts.		
Damage to third party assets					
UXO and existing utilities	Low – the Application Corridor is located 8km to a CalMac Ferries jetty.	Within the Application Corridor.	Stakeholder engagement and consultation will be undertaken with other marine users to inform them of the Project.	Yes	Section 12
Disruption to Military vessels					
Commercial fisheries and other sea users	Medium – the application corridor is located within two military PEXAs.	Within the Application Corridor.	Stakeholder engagement and consultation will be undertaken with other marine users to inform them of the Project.	Yes	Section 11

5. PROTECTED SITES

5.1 Introduction

This Section provides details on the marine protected sites and species that may be present or have the potential to be present within or adjacent to the Application Corridor. Potential impacts on sites determined to be at risk of impact from the proposed installation activities have been assessed, along with the mitigation and management measures that will be utilised to remove or reduce these impacts. This Section should be read in conjunction with the separate European Protected Species (EPS) Risk and Protected Sites and Species Assessment (Xodus, 2023) which assessed the impacts of survey activities to protected sites and species over the Argyll region.

Protected sites including Special Areas of Conservation (SACs), Nature Conservation Marine Protected Areas (NCMPAs), Special Protection Areas (SPAs), RAMSAR sites and Sites of Special Scientific Interest (SSSIs) in the immediate vicinity of the Application Corridor for physical features and within 50km for sites designated for mobile species, have been considered within the baseline. The potential for likely significant effects has been identified and assessed.

5.2 Data Sources

The preliminary baseline of protected sites in the region has been informed using the following sources:

- European Protected Species (EPS) and Protected Sites and Species Risk Assessment - Argyll (Appendix C)
- Coll to Tiree Submarine Power Cable Desktop Environmental Report (WSP, 2023)
- Coll to Tiree Cable Route Desktop Study (OceanIQ, 2023)

In order to establish baseline conditions a desktop review of published information has been undertaken supported by consultation with relevant bodies. Any other data sources used are referenced throughout the document.

5.3 Protected Sites and Species Description

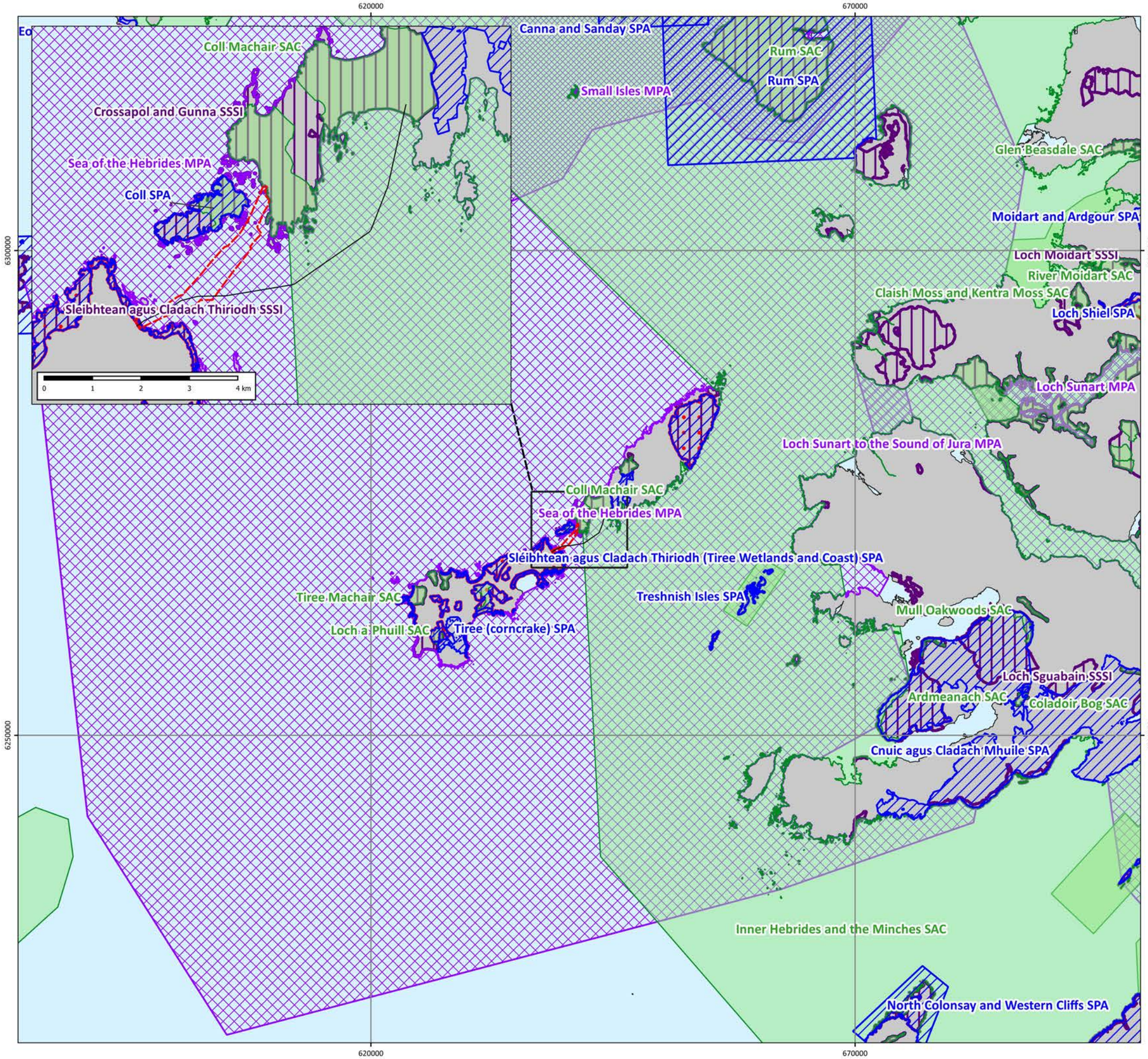
The Application Corridor overlaps with five protected sites and a further 16 sites within 50km designated for mobile species (see Figure 5-1 (Drawing reference: P2663K1-PROT_001)).

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

PROTECTED SITES

Wider Environmental Designations

Drawing No: P2663K-PROT-001 | B



Legend

- RPL
- Application Corridor

Environmental Designations

- SAC
- SPA
- MPA
- RAMSAR
- SSSI

N

NOT TO BE USED FOR NAVIGATION

Date	2024-12-18 12:40:50
Coordinate System	WGS 84 / UTM zone 29N
WKID	EPSG:32629
Scale @A3	1:400,000
Data Sources	OS; JNCC; NS; SHEPD; ESRI
File Reference	J:\P2663\P2663K\Mxd_QGZ \P2663K.qgz
Created By	Lewis Castle
Reviewed By	Lewis Castle
Approved By	Aodhfin Coyle

Scottish & Southern Electricity Networks

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5.3.2 Special Areas of Conservation (SACs)

SACs are sites classified under the Conservation (Natural Habitats, & c.) Regulations 2010 (as amended), the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended by the Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019), for the protection of Annex I or migratory breeding and non-breeding birds (JNCC, 2019b).

There is one SAC located within the Application Corridor; six SAC's are located within 50km of the Application Corridor and two with primary or qualifying features with the potential to enter the Application Corridor.

5.3.2.1 Coll Machair (Within)

Overlapping with the Crossapol and Gunna and Totamore Dunes and Loch Ballyhaugh SSSIs, the Coll Machair SAC is located on the Isle of Coll in the Inner Hebrides. The site is designated for its diverse habitats, including coastal sand dunes, machair plains, and associated wetlands. These habitats are the primary reason for the site's selection, with the machair habitat considered one of the most significant examples of this habitat in the Inner Hebrides. Additional qualifying features include Annex I habitats such as humid dune slacks as well as oligotrophic and mesotrophic standing waters. This site also supports Annex II species Slender naiad (*Najas flexilis*) (JNCC, 2015). **Due to the overlap of the Coll Machair SAC and the Application Corridor, this site has been taken forward for assessment in Section 5.4.**

5.3.2.2 Inner Hebrides and the Minches (0.56km)

This SAC (also designated as a SSSI) spans an area of 13,800km² on the west coast of Scotland, making it the largest protected area in Europe for harbour porpoises (*Phocoena Phocoena*). The site supports up to 500 individuals of this Annex II species, which was the primary reason for its designation. Given the mobile nature of harbour porpoise, there is potential for their presence within the Application Corridor (JNCC, 2018). **Therefore, this site has been taken forward for assessment in Section 5.4**.

5.3.2.3 Treshnish Isles (17.05km)

The Treshnish Isles SAC covers an area of approximately 19.63km^2. Its qualifying features include grey seals (*Halichoerus grypus*) and reef habitats. Additionally, the site hosts maerl and seagrass beds, which are present as Priority Marine Features (Scottish Government, 2014). Given the mobile nature of grey seals, there is potential for their presence within the Application Corridor. **Therefore, this site has been taken forward for assessment in Section 5.4**.

5.3.2.4 Sunart (41.70km)

Covering an area of 0.10km^2, the Sunart SAC (also designated as a SSSI) is located on the west coast of Scotland. The site was primarily selected for its Annex I old sessile oak woods. Additional features include Annex I Reef habitats such as Northern Atlantic wet heaths with *Erica tetralix*, European dry heaths, and *Tilio-Acerion* forests of slopes, screes and ravines (priority feature), as well as the Annex II otter (*Lutra lutra*) which are present in a relatively high density (JNCC, 2015a). Given that otters typically forage near shore and only travel greater distances (<100 meters) when moving between islands (BEIS, 2022), it is unlikely that they will be found within the application corridor. **Therefore, this site has not been taken forward for assessment in Section 5.4**.

5.3.2.5 Mull Oakwoods (43.17km)

Overlapping with the Ben More – Scarisdale and Ardura – Auchnacraig SSSIs, this site covers an area of 14.10km^2 on the island of Mull. The site is primarily designated for the presence of oak woodlands, an Annex I habitat. Additionally, the Annex II otter (*Lutra lutra*) is present as a qualifying feature (JNCC, 2005a). Given that otters typically forage near shore and only travel greater distances (<100 meters) when moving between islands (BEIS, 2022), it is unlikely that they will be found within the application corridor. **Therefore, this site has not been taken forward for assessment in Section 5.4**.

5.3.2.6 Morvern Woods (43.95km)

Spanning an area of 19.2km^2, the Morven Woods SAC is located on the Morvern Peninsular in the south-west Highlands. The SAC is designated for its Annex I habitats, which include old sessile oak woods and Tilio-Acerion forests of slopes, screes, and ravines. Additionally, the site provides crucial habitat for the Annex II otter (*Lutra lutra*), which utilises the woodland and surrounding aquatic habitats (JNCC, 2024). Given that otters typically forage near shore and only travel greater distances (<100 meters) when moving between islands (BEIS, 2022), it is unlikely that they will be found within the Application Corridor. **Therefore, this site has not been taken forward for assessment in Section 5.4**.

5.3.2.7 Rum (46.61km)

Covering the entire Isle of Rum with an area of 108km^2, the Rum SAC is designated for the acid peat-stained lakes and ponds, acidic scree, alphine and subalphine heaths, base-rich fens, base-rich scree, blanket bog, clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels, depressions on peat substrates, dry heaths, grasslands on soils rich in heavy metals, plants in crevices on acid rocks, plants in crevices on base-rich rocks, species-rich grassland with mat-grass in upland areas, tall herb communities, vegetated sea cliffs, wet heathland with cross-leaved heath and otter (*Lutra lutra*) (NatureScot, 2005). Given that otters typically forage near shore and only travel greater distances (<100 meters) when moving between islands (BEIS, 2022), it is unlikely that they will be found within the Application Corridor. **Therefore, this site has not been taken forward for assessment in Section 5.4**.

5.3.3 Special Protection Areas (SPAs)

SPA's are sites classified under the Conservation (Natural Habitats, & c.) Regulations 2010 (as amended), the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended by the Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019), for the protection of Annex I or migratory breeding and non-breeding birds (JNCC, 2019c).

Two SPAs are located within the Application Corridor; six SPA's are located within 50km of the Application Corridor and of which five support species with the potential to enter the Application Corridor.

5.3.3.1 Coll and Tiree (Within)

Located off the west coast of Scotland, in the Inner Hebrides, this SPA covers an area of 794.75km^2. The site includes the islands of Coll and Tiree and their surrounding waters, which are crucial for a range of bird species, particularly wintering waterfowl and seabirds. This site is specifically designated for its importance in supporting large populations of the great northern diver (*Gavia immer*), common eider (*Somateria mollissima*), and other bird species that depend on the area for feeding, moulting, and roosting. During the winter, this site also provides key habitat for breeding seabirds (JNCC, 2020). The protected species of this site overlap with the Application Corridor. **Therefore, this site has been taken forward for assessment in Section 5.4**.

5.3.3.2 Sleibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast) (Within)

This SPA is located in the Inner Hebrides of western Scotland, on the island of Tiree and overlaps with the Sleibhtean agus Cladach Thiriodh SSSI. The site is designated for its breeding bird populations including dunlin (*Calidris alpina schinzii*), oystercatcher (*Haematopus ostralegus*), redshank (*Tringa totanus*) and ringed plover (*Charadrius hiaticula*) as well as non-breeding bird communities including Greenland barnacle goose (*Branta leucopsis*), Greenland white-fronted goose (*Anser albifrons flavirostris*), ringed plover (*Charadrius hiaticula*) and turnstone (*Arenaria interpres*) (NatureScot, 2001). The protected species of this site overlap with the Application Corridor. **Therefore, this site has been taken forward for assessment in Section 5.4**.

5.3.3.3 Coll (0.11km)

Covering an area of 23.2km^2, the Coll SPA is located on the Isle of Coll, in the Inner Hebrides and overlaps with the Crossapol and Gunna and North East Coll Lochs and Moors SSSIs. The site is recognised for supporting 3% of the GB population of the Annex II Greenland white-fronted Goose (*Anser albifrons flavirostris*) and 2% of the GB population of the Greenland barnacle Goose (*Branta leucopsis*), making it an important area for the conservation of these species(JNCC, 2022). As presented in Table 5-1, it is likely for protected species of this site to be present within the Application Corridor. **Therefore, this site has been taken forward for assessment in Section 5.4.**

5.3.3.4 Coll (corncrake) (3.71km)

The Coll (corncrake) SPA is located on the Isle of Coll, in the Inner Hebrides and overlaps with the Crossapol and Gunna and Totamore Dunes and Loch Ballyhaugh SSSIs. This site is designated for supporting 5% of the GB breeding population of corncrake (*Crex Crex*). Through its diverse habitat, the site also hosts other important bird species (JNCC, 2015). Corncrake are primarily terrestrial species known to inhabit dry land only (RSPB, 2024). As presented in Table 5-1, the range of corncrake is unknown and as such as a worse case it is assumed protected species of this site have the potential to overlap with the Application Corridor. **Therefore, this site has been taken forward for assessment in Section 5.4**.

5.3.3.5 Tiree (corncrake) (11.82km)

Located on the island of Tiree in the Inner Hebrides, this site places a crucial role in the conservation of the Annex I species, corncrake (*Crex crex*). During the breeding season, the site regularly hosts approximately 9.2% of the GB population of corncrake (JNCC, 2015). Corncrake are primarily terrestrial species known to inhabit dry land only (RSPB, 2024). As presented in Table 5-1, the range of corncrake is unknown and as such as a worse case it is assumed protected species of this site have the potential to overlap with the Application Corridor. **Therefore, this site has been taken forward for assessment in Section 5.4**.

5.3.3.6 Treshnish Isles (17.50km)

The Treshnish Isles SPA, which is also designated as a Site of Special Scientific Interest (SSSI) and a Special Area of Conservation (SAC), is located in the Inner Hebrides. The site is recognised for its significant breeding populations of seabirds, including important populations of Annex II species such as the Greenland barnacle goose (*Branta leucopsis*) and European storm petrel (*Hydrobates pelagicus*). The site provides vital habitat for these species, which utilise the steep cliffs and rocky outcrops of the islands for nesting (Scottish Natural Heritage, 2011). As presented in Table 5-1, protected species of this site have the potential to overlap with the Application Corridor. **Therefore, this site has been taken forward for assessment in Section 5.4**.

5.3.3.7 Cnuic agus Cladach Mhuile (36.17km)

Spanning a large area of 292.42km^2 this SPA is located on the Isle of Mull in the Inner Hebrides and overlaps with the Gribun Shore and Crags and Ardura – Auchnacraig SSSIs. The site encompasses extensive areas of mountainous terrain and moorland, along with several freshwater lochs. It is designated for its significance in supporting a breeding population of the Annex I species golden eagle (*Aquila chrysaetos*). Specifically, the area hosts 14 breeding pairs, representing 3.3% of the GB population (Scottish Natural Heritage, 2022). As presented in Table 5-1, it is unlikely for protected species of this site to be present within the Application Corridor. **Therefore, this site has not been taken forward for further assessment.**

5.3.3.8 Rum (38.14km)

Spanning from the northwest of the Isle of Eigg to the east of the Isle of Canna and encompassing the Isle of Rum, The Rum SPA covers an area of 467km^2. The site (also designated as an SSSI) is designated for breeding populations of golden eagle (*Aquila chrysaetos*), guillemot (*Uria aalge*), kittiwake (*Rissa*

tridactyla), Manx shearwater (*Puffinus puffinus*) and red-throated diver (*Gavia stellata*) (NatureScot, 2020). As presented in Table 5-1, protected species of this site have the potential to overlap with the Application Corridor. **Therefore, this site has been taken forward for assessment in Section 5.4**.

5.3.4 Nature Conservation Marine Protected Areas

Nature Conservation Marine Protected Areas (NCMPAs) are designated by Scottish Ministers under the Marine (Scotland) Act for the protection of biodiversity and geodiversity features within territorial waters (12 nautical miles (NM)) (NatureScot, 2020d).

There is one NCMPA located within the Application Corridor; two NCMPAs are located within 50km, neither of which have protected features with the potential to enter the Application Corridor.

5.3.4.1 Sea of the Hebrides (Within)

The Sea of Hebrides NCMPA covers the east coast of the Outer Hebrides and the west coasts of the Inner Hebrides (NatureScot, 2020a). The NCMPA is recognised for the geomorphology of the Scottish Shelf Seabed, particularly its role in the formation of carbon-rich sediments. The site is also notable for its protected features, including basking sharks and minke whales, which are mobile species and reflect the site's expansive size (NatureScot, 2020b). Considering the mobile nature of basking sharks and minke whales, there is potential for them to be present within the Application Corridor. **Therefore, this site has been taken forward for assessment in Section 5.4**.

5.3.4.2 Loch Sunart to the Sound of Jura (31.98km)

Located off Scotland's west coast, the Loch Sunart to the Sound of Jura NCMPA covers an area of approximately 741km^2 (also designated as a SAC and SSSI). It is primarily designated to protect the critically endangered common skate (*Dipturus intermedia*), which relies on the site as a vital habitat. Evidence indicates that shallow reef areas within the MPA serve as key locations for the species to lay their egg cases. Additionally, the MPA safeguards significant geological features, such as glaciated channels and moraines, which contribute to the area's ecological and scientific importance (Scottish Natural Heritage, 2014). Although the common skate is a mobile species and therefore has the potential to transit into the Application Corridor, there is evidence that a majority of populations are non-migratory and resident and as such it is unlikely for the species to be present within the Application Corridor (Neal & Pizzolla, 2006). **Therefore, this site has not been taken forward for assessment in Section 5.4**.

5.3.4.3 Small Isles (33.26km)

Covering the Isles of Rum, Canna and surrounding waters to an area of 803km^2, the Small Isles NCMPA is designated for the protection of burrowed mud, circalittoral sand and mud communities, fan mussel aggregations (*Atrina fragilis*), horse mussel beds, northern feather star aggregations (*Leptometra celtica*) on mixed substrata, northern sea fan and sponge communities, quaternary of Scotland and black guillemot (*Cepphus grylle*) (NatureScot, 2016). As presented in Table 5-1, mobile protected species of this site do not have the potential to overlap with the Application Corridor. **Therefore, this site has not been taken forward for assessment in Section 5.4**.

5.3.5 Sites of Special Scientific Interest (SSSI)

SSSIs are statutory designations made by NatureScot under the Nature Conservation (Scotland) Act 2004. They are defined as areas of land and water that are considered to best represent natural heritage in terms of flora, fauna, geology and geomorphology (NatureScot, 2023).

There is one SSSI located within the Application Corridor; two SSSI's are located within 50km of the Application Corridor, both of which are designated for features that may enter the Application Corridor.

5.3.5.1 Crossapol and Gunna (within)

Located on the southern end of the Isle of Coll and covering approximately 9.18km^2, the Crossapol and Gunna SSSI is designated for biological features including machair and sand dune coastal habitats, as well as bird species. Protected bird features of this site include non-breeding populations of Greenland white-fronted goose (*Anser albifrons flavirostris*) and Greenland barnacle goose (*Branta leucopsis*). These species rely on the site's rich habitats for roosting and feeding, especially during the winter. This site is part of the Coll Machair SAC and the Coll SPA (Scottish Natural Heritage, 2011). There is potential for the protected species of this site to be present within the Application Corridor. **Therefore, this site has been taken forward for further assessment in Section 5.4.**

5.3.5.2 Treshnish Isles (17.50km)

The Treshnish Isles SSSI, situated off the west coast of Mull, is also designated as a Special Area of Conservation (SAC) and a Special Protection Area (SPA). This site is recognized for its significant geological and biological features. It is home to a variety of seabird colonies, including populations of European storm petrels (*Hydrobates pelagicus*), Manx shearwaters (*Puffinus puffinus*), puffins (*Fratercula arctica*), razorbills (*Alca torda*), guillemots (*Uria aalge*), kittiwakes (*Rissa tridactyla*), fulmars (*Fulmarus glacialis*), and shags (*Phalacrocorax aristotelis*). Additionally, the Treshnish Isles support the largest breeding colony of grey seals (*Halichoerus grypus*) in the Mull, Coll, and Tiree area. During winter migration, the islands provide crucial refuge and feeding grounds for barnacle geese (*Branta leucopsis*) (Scottish Natural Heritage, 2011). Given the mobile nature of grey seals and the ranges listed in Table 5-1, protected species of this site have the potential to overlap with the Application Corridor. **Therefore, this site has been taken forward for assessment in Section 5.4**.

5.3.5.3 Staffa (25.52km)

Staffa, located on the west coast of Scotland, is designate for its geological features as well as its rich biodiversity. Notably, the site supports nationally important numbers of breeding populations of puffins (*Fratercula artica*), fulmar (*Fulmarus glacialis*) and shag (*Phalacrocorax aristotelis*). As presented in Table 5-1, protected species of this site have the potential to overlap with the Application Corridor. **Therefore, this site has been taken forward for assessment in Section 5.4**.

Table 5-1 Range of Birds in the Coll and Tiree Region

Species	Range (km)
Arctic tern (*Sterna paradisaea*)	25.7
Black guillemot (*Cepphus grylle*)	4.8
Common eider (*Somateria mollissima*)	21.5
Common scoter (*Melanitta nigra*)	2
Common terns (*Sterna hirundo*)	18
Corncrake (*Crex crex*)	Unknown
Chough (*Pyrrhocorax pyrrhocorax*)	Unknown
Curlew (*Numenius* spp.)	2
Dunlin (*Calidris alpina*)	3
Fulmar (*Fulmarus glacialis*)	542.3
Golden eagle (*Aquila chrysaetos*)	6
Great northern diver (*Gavia immer*)	10
Greenland barnacle goose (*Branta leucopsis*)	7

Species	Range (km)
Greenland white-fronted goose (*Anser albifrons*)	10
Guillemot (*Uria aalge*)	73.2
Kittiwake (*Rissa tridactyla*)	156.1
Light-bellied brent goose (*Branta bernicla hrota*)	10
Manx shearwaters (*Puffinus puffinus*)	1,346.8
Oystercatcher (*Haematopus ostralegus*)	1.9
Puffin (*Fratercula arctica*)	137.1
Razorbill (*Alca torda*)	88.7
Redshank (*Tringa tetanus*)	1.5
Ringed plover (*Charadrius hiaticula*)	Unknown
Shag (*Phalacrocorax aristotelis*)	13.2
Short-eared owl (*Asio flammeus*)	5
Storm petrel (*Hydrobates pelagicus*)	336
Turnstone (*Arenaria interpres*)	Unknown

Sources: Woodward *et al.* (2019); Hudson (1989); Sim *et al.* (2017); Savard & Dupuis (1999); Madsen *et al.* (2001); Doyle *et al.* (2022); MacArthur Green (2021); Scottish Government (2019); Scottish Natural Heritage (2016); Newton, S.F.; Crowe, O. (2000); Kevin, K. C., *et al.* (2013).

5.3.6 Other Protected Sites

There are no National Scenic Areas (NSA) or World Heritage Sites (WHS) which transect the Application Corridor. Therefore, these are not discussed further as part of this report.

5.4 Potential Impacts and Zones of Influence

Table 5-2 below summarises the protected sites in the vicinity of the replacement cable Application Corridor and details sites that have been assessed further to determine whether there is potential for likely significant effect (LSE). Those sites or impacts for which no LSE is expected have not been considered further in this assessment.

Table 5-2 Impact Assessment of Protected Sites in the Vicinity of the Application Corridor

Protected site	Distance from Application Corridor (km)	Features of designated site most likely to be affected	Potential pressures	Potential pressure-receptor pathway	Require further assessment?
Coll Machair SAC	Within	Coastal sand dune Machair plains Wetlands	Physical change Abrasion / disturbance at the surface of the substratum	The installation of the cable at the landfall may impact the designated features.	Yes
Coll and Tiree SPA	Within	Great northern diver (*Gavia immer*) Common eider (*Somateria mollissima*)	Visual (and above water noise) disturbance Vessel presence	Physical presence at the landfall site may potentially disturb species at the Coll and Tiree SPA and the presence of the installation vessels can potentially cause disturbance and/or a collision risk for bird species.	Yes
Sleibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast) SPA	Within	Dunlin (*Calidris alpina schinzii*) Oystercatcher (*Haematopus ostralegus*) Redshank (*Tringa totanus*) Ringed plover (*Charadrius hiaticula*) Greenland barnacle goose (*Branta leucopsis*) Greenland white-fronted goose (*Anser albifrons flavirostris*) Ringed plover (*Charadrius hiaticula*) Turnstone (*Arenaria interpres*)	Visual (and above water noise) disturbance Vessel presence	Physical presence at the landfall site may potentially disturb species at the site and the presence of the installation vessels can potentially cause disturbance and proves a collision risk for bird species.	Yes
Sea of the Hebrides NCMPA	Within	Basking sharks Minke whales Marine Geomorphology of the Scottish Shelf Seabed	Underwater noise changes Vessel presence Physical change Abrasion / disturbance at the surface of the substratum	Underwater noise changes have the potential to disturb basking sharks and minke whales from the site. Vessels also pose a collision risk. The installation of the cable and associated protection measures may impact the designated geomorphological features.	Yes
Crossapol and Gunna SSSI	Within	Greenland white-fronted goose (*Anser albifrons flavirostris*)	Visual (and above water noise) disturbance	Physical presence at the landfall site may potentially disturb species at this designated site and the presence of the installation vessels can	Yes

Protected site	Distance from Application Corridor (km)	Features of designated site most likely to be affected	Potential pressures	Potential pressure-receptor pathway	Require further assessment?
		Greenland barnacle goose (Branta leucopsis).	Vessel presence	potentially cause disturbance and/or a collision risk for bird species.	
Coll SPA	0.11	Greenland white-fronted goose (*Anser albifrons flavirostris*) Greenland barnacle goose (Branta leucopsis).	Visual (and above water noise) disturbance Vessel presence	Physical presence at the landfall site may potentially disturb species at this designated site and the presence of the installation vessels can potentially cause disturbance and/or a collision risk for bird species.	Yes
Inner Hebrides and the Minches SAC	0.56	Harbour porpoise (*Phocoena Phocoena*)	Underwater noise changes Vessel presence	Underwater noise changes have the potential to disturb harbour porpoise from the site. Vessels also pose a collision risk.	Yes
Coll (corncrake) SPA	3.71	Corncrake (*Crex Crex*)	Visual (and above water noise) disturbance Vessel presence	Physical presence at the landfall site may potentially disturb species at the site and the presence of the installation vessels can potentially cause disturbance and collision risk.	Yes
Tiree (corncrake) SPA	11.82	Corncrake (*Crex crex*)	Visual (and above water noise) disturbance Vessel presence	Physical presence at the landfall site may potentially disturb species at the site and the presence of the installation vessels can potentially cause disturbance and collision risk.	Yes
Treshnish Isles SAC	17.05	Grey seals (*Halichoerus grypus*)	Underwater noise changes Vessel presence	Underwater noise changes have the potential to disturb seals from the site. Vessels also pose a collision risk.	Yes
Treshnish Isles SPA	17.50	Greenland barnacle goose (Branta leucopsis). European storm petrel (*Hydrobates pelagicus*)	Visual (and above water noise) disturbance Vessel presence	Physical presence at the landfall site may potentially disturb species at the Treshnish Isles SPA site and the presence of the installation vessels can potentially cause disturbance and/or a collision risk for bird species.	Yes
Treshnish Isles SSSI	17.50	European storm petrel (*Hydrobates pelagicus*)Manx shearwaters (*Puffinus puffinus*) Puffins (*Fratercula arctica*) Razorbills (*Alca torda*)	Underwater noise changes Visual (and above water noise) disturbance Vessel presence	Underwater noise changes have the potential to disturb the grey seals and diving birds from the site. The presence of the installation vessels can potentially cause disturbance to bird species. Vessels pose a collision risk for bird species and seals.	Yes

Protected site	Distance from Application Corridor (km)	Features of designated site most likely to be affected	Potential pressures	Potential pressure-receptor pathway	Require further assessment?
		Guillemots (*Uria aalge*) Kittiwakes (*Rissa tridactyla*) Fulmars (*Fulmarus glacialis*) Shags (*Phalacrocorax aristotelis*) Grey seals (*Halichoerus grypus*)			
Staffa SSSI	25.52	Fulmar (*Fulmarus glacialis*) Shag (*Phalacrocorax aristotelis*) Puffin (*Fratercula artica*)	Visual (and above water noise) disturbance Vessel presence	Physical presence at the landfall site may potentially disturb species at the Staffa SSSI site and the presence of the installation vessels can potentially cause disturbance and/or a collision risk for bird species.	Yes
Loch Sunart to the Sound of Jura NCMPA	31.98	Common skate (*Dipturus intermedia*)	Underwater noise changes Vessel presence	Foraging activities are unlikely to extend to the Application Corridor. As such there is no potential for pressure-receptor pathway between this feature and the cable installation activities given the distance of this site from the Application Corridor.	No
Small Isles NCMPA	33.26	Black guillemot (*Cepphus grylle*)	Visual (and above water noise) disturbance Vessel presence	Foraging activities are unlikely to extend to the Application Corridor. As such there is no potential for pressure-receptor pathway between this feature and the cable installation activities given the distance of this site from the Application Corridor.	No
Cnuic agus Cladach Mhuile SPA	36.17	Golden eagle (*Aquila chrysaetos*)	Visual (and above water noise) disturbance Vessel presence	Foraging activities are unlikely to extend to the Application Corridor. As such there is no potential for pressure-receptor pathway between this feature and the cable installation activities given the distance of this site from the Application Corridor.	No
Rum SPA	38.14	Golden eagle (*Aquila chrysaetos*) Guillemot (*Uria aalge*) Kittiwake (*Rissa tridactyla*)	Visual (and above water noise) disturbance Vessel presence	Physical presence at the landfall site may potentially disturb species at this protected site and the presence of the installation vessels can potentially cause disturbance and proves a collision risk for bird species.	Yes

Protected site	Distance from Application Corridor (km)	Features of designated site most likely to be affected	Potential pressures	Potential pressure-receptor pathway	Require further assessment?
		Manx shearwater (*Puffinus puffinus*) Red-throated diver (*Gavia stellata*)			
Sunart SAC	41.70	Otter (*Lutra lutra*)	Underwater noise changes Vessel presence Visual (and above water noise) disturbance	Foraging activities are unlikely to extend to the Application Corridor. Sound propagation is unlikely to extend as far as this site. As such there is no potential for pressure-receptor pathway between this feature and the cable installation activities given the distance of this site from the Application Corridor.	No
Mull Oakwoods SAC	43.17	Otter (*Lutra lutra*)	Underwater noise changes Vessel presence Visual (and above water noise) disturbance	Foraging activities are unlikely to extend to the Application Corridor. Sound propagation is unlikely to extend as far as this site. As such there is no potential for pressure-receptor pathway between this feature and the cable installation activities given the distance of this site from the Application Corridor.	No
Morvern Woods SAC	43.95	Otter (*Lutra lutra*)	Underwater noise changes Vessel presence Visual (and above water noise) disturbance	Foraging activities are unlikely to extend to the Application Corridor. As such there is no potential for pressure-receptor pathway between this feature and the cable installation activities given the distance of this site from the Application Corridor.	No
Rum SAC	46.61	Otter (*Lutra lutra*)	Underwater noise changes Vessel presence Visual (and above water noise) disturbance	Foraging activities are unlikely to extend to the Application Corridor. Sound propagation is unlikely to extend as far as this site. As such there is no potential for pressure-receptor pathway between this feature and the cable installation activities given the distance of this site from the Application Corridor.	No

5.5 Assessment of Likely Significant Effects

5.5.1 Underwater Noise Changes

Underwater noise changes generated by Project vessels and installation equipment may pose a risk to cetaceans, pinnipeds and basking shark. Such noise has the ability to impact these species in two ways as follows:

- 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.

To determine the potential impact of noise generated by the Project on cetaceans, pinnipeds and basking shark, the sound levels that will be produced have been compared to the available estimated thresholds for injury and disturbance in cetaceans, pinnipeds and basking shark. JNCC guidance (JNCC, 2019a) recommends using the injury criteria proposed by 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).

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. For details on the typical auditory bandwidths of cetaceans, see Table 5-3 below. The hearing range of basking sharks is not currently known. However, five other elasmobranchs have been found to have a hearing range between 20Hz to 1kHz. This range may or may not be transferable to basking sharks (Macleod *et al*., 2011). Pinnipeds possess a typical hearing range of 50Hz to 86Hz (NMFS, 2018).

Table 5-3 Auditory Bandwidths Estimated for Hearing Groups of Cetaceans and Other Species

Hearing Group	Estimated Auditory Bandwidth
Low-frequency cetaceans (deep diving species e.g. minke whale, pilot whale, etc.)	7Hz to 35kHz, with peak sensitivity around 100- 200Hz
Mid-frequency cetaceans (small dolphins e.g. bottlenose dolphin, common dolphin, white-beaked dolphin, etc.)	150Hz to 160kHz, with peak sensitivity above 10kHz (Except for killer whales: 50Hz to 100kHz)
High-frequency cetaceans (harbour porpoise)	180Hz to 200kHz, with peak sensitivity above 4kHz
Phocid pinnipeds (true seals, e.g. grey and harbour seal)	50Hz to 86kHz
Basking shark	20Hz to 1kHz

Source: NMFS, 2018; Southall *et al.*, 2019

The main sources of underwater noise that will be generated by the cable installation activities are:

- Noise from installation vessels utilised during the works; and
- Noise from cable laying activities.

However, the presence of installation vessels within the Application Corridor is not expected to result in a significant change in the number of vessels typically present in the area and as such will not result in a significant change to the soundscape of the area and the noise levels associated with the vessels are likely to be too low to result in injury (Xodus, 2023). Furthermore, modelling studies conducted to support and Protected Sites and Species Risk Assessment concluded that for injury to occur animals would need to be within metres to tens of metres of the sound source. The likelihood of a marine

mammal being this close to vessels, operational equipment or the installation activities is extremely low (Xodus, 2023).

As cable installation activities will be a continuous but temporary occurrence, nearby animals will not be subject to lasting or prolonged periods of noise. As such, noise and associated temporary disturbance from the cable laying activities themselves will not result in a significant adverse effect on nearby individuals.

5.5.1.2 Sea of the Hebrides NCMPA

Conservation objectives

The conservation objectives of the Sea of Hebrides NCMPA are to ensure that protected features (basking sharks and minke whales) currently in favourable condition are maintained in this state, and that those features not yet in favourable condition are restored to, and sustained at, a favourable condition.

Assessment against conservation objectives

The Application Corridor is located within the Sea of Hebrides NCMPA. As presented in Figures 5-2 (Drawing ref: P2663K1-MAMM-002) and 5-3 (Drawing ref: P2663K1-FISH-001), minke whale density within the Application Corridor is 0.00-0.10 individuals per 25m^2 whilst basking shark density within the Application Corridor is 1-2 individuals per 25m^2. Therefore, within the immediate waters surrounding the proposed operation these species may experience some disturbance.

Basking shark are considered to have a low sensitivity to noise (NatureScot, 2024). Minke whale are considered to be more sensitive to noise, with the potential for disturbance and displacement from foraging areas from activities that operate at frequencies that overlap with their hearing range.

However, given the limited minke whale density in the area, the low sensitivity of the basking shark to noise and the temporary nature of the installation activities, no significant disturbance of these species will occur as a result of installation activities. The condition of the protected features will remain the same.

5.5.1.3 Inner Hebrides and the Minches SAC

Conservation objectives

To ensure that the SAC continues to contribute effectively to the favourable conservation status of harbour porpoise. Additionally, to ensure that the sites integrity is maintained through the following:

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

Assessment against conservation objectives

Harbour porpoise are present within the Inner Hebrides and the Minches SAC year-round. With the Application Corridor being located within the site, any porpoise seen is highly likely to be part of the SAC protected population, with the species transiting between various parts of the SAC. Within the Application Corridor harbour porpoise densities is Top 50% of the population, with a much denser population expected to the south east of the Application Corridor (Figure 5-4, Drawing reference: P2663K1-MAMM-001). Therefore, harbour porpoise within the water could be potentially disturbed by the installation operations.

Although harbour porpoise are highly sensitive to noise disturbances (Dyndo *et al*., 2015) it is likely they will move away from any noise sources during the operation, as such the likelihood of injury occurring is low. Furthermore, given the short-term, localised and temporary nature of the installation activities, the distribution of harbour porpoise within the Inner Hebrides and the Minches SAC will be

maintained and no significant disturbance of the harbour porpoise species is expected to occur. The population will therefore remain a viable component of the site. Underwater noise changes and associated cable installation activities will not affect the distribution, extent, structure and function of the supporting habitat for harbour porpoise, ensuring they are maintained for use by the species into the future.

5.5.1.4 Treshnish Isles SAC

Conservation objectives

To avoid deterioration of the qualifying habitat 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 (grey seals). And;

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

- Extent of the habitat on site
- Distribution of the habitat within site
- Structure and function of the habitat
- Processes supporting the habitat
- Distribution of typical species of the habitat
- Viability of typical species as components of the habitat
- No significant disturbance of typical species of the habitat

Assessment against conservation objectives

Within the Application Corridor grey seals may be present at high densities of 50-100 individuals per 25km^2 (Figure 5-5, Drawing reference: P2663K1-HAB-002). Therefore, grey seals in the water could be susceptible to disturbance from the installation activities.

However, given the short-term, localised and temporary nature of the installation activities, the distribution of grey seals within the Treshnish Isles SAC is expected to be maintained and no significant disturbance of the grey seal species at a population level is expected to occur. The population will therefore remain a viable component of the site. Underwater noise changes and associated cable installation activities is not expected to affect the distribution, extent, structure and function of the supporting habitat for grey seal, ensuring they are maintained for use by the species into the future.

5.5.1.5 Treshnish Isles SSSI

Conservation objectives

The conservation objectives of Treshnish Isles SSSI are to maintain or restore the ecological integrity and favourable condition of the site's key features (bird features and grey seals).

Assessment against conservation objectives

Within the Application Corridor grey seals may be present at high densities of 50-100 individuals per 25km^2 (Figure 5-5, Drawing reference: P2663K1-HAB-002). Therefore, grey seals in the water could be susceptible to disturbance from the installation activities.

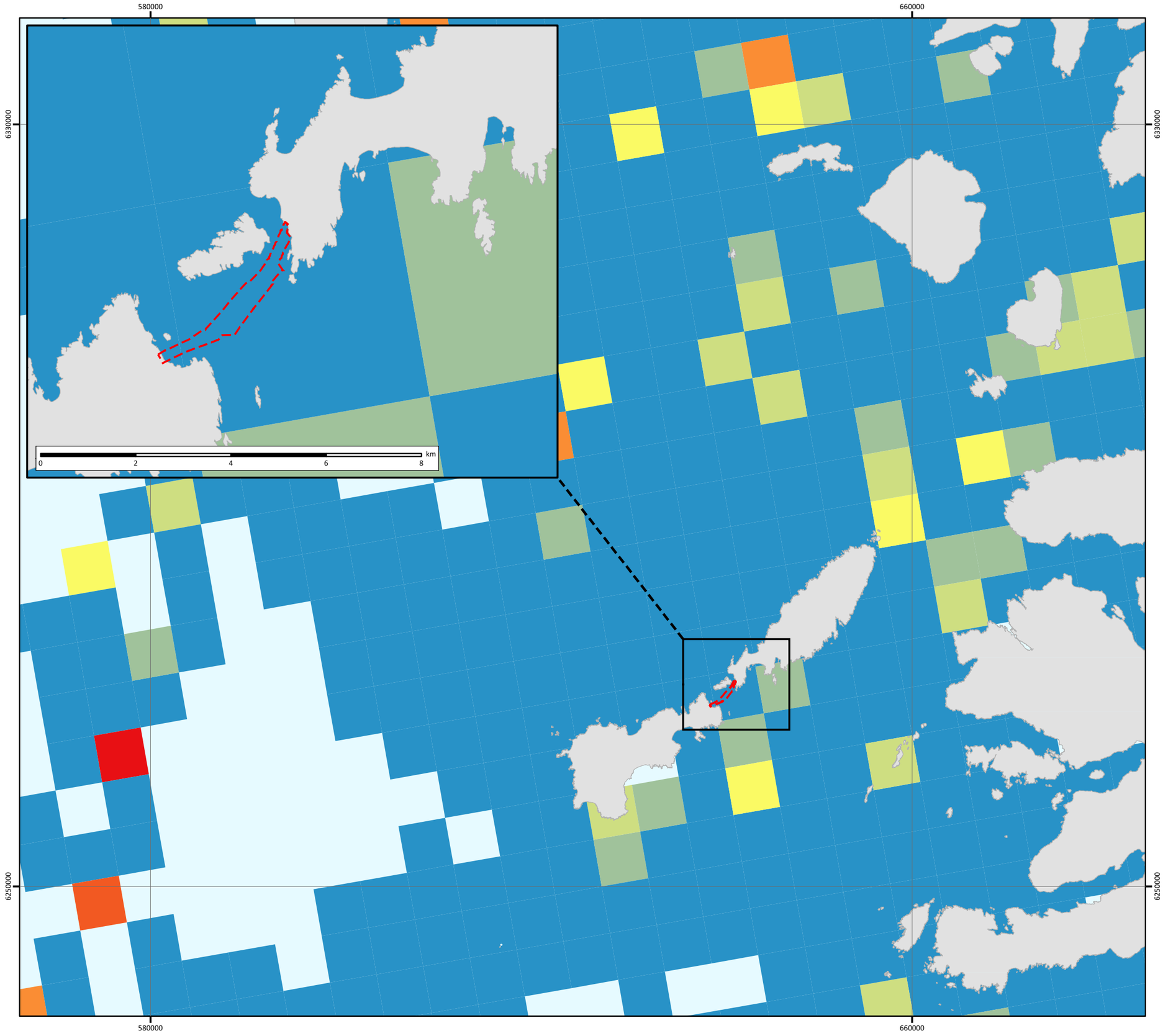
However, given the short-term, localised and temporary nature of the installation activities, the distribution of grey seals within the Treshnish Isles SSSI is expected to be maintained and no significant disturbance of the grey seal species at a population level is expected to occur. The population will therefore remain a viable component of the site. Underwater noise changes and associated cable installation activities is not expected to affect the distribution, extent, structure and function of the supporting habitat for grey seal, ensuring they are maintained for use by the species into the future.

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

MARINE MAMMALS

Observed Adjusted Densities of Minke Whale (2000-2012)

Drawing No: P2663K-MAMM-002 | **B**



Legend

Application Corridor

Observed Adjusted Densities

Encounter Rate

- 0.00 - 0.10
- 0.10 - 0.20
- 0.20 - 0.50
- 0.50 - 1.00
- 1.00 - 2.00
- 2.00 - 5.00
- 5.00 - 10.00
- > 10.00

N
W
E
S

NOTE: Not to be used for Navigation

Date	04 February 2025
Coordinate System	WGS 1984 UTM Zone 29N
Projection	Transverse Mercator
Datum	WGS 1984
Data Source	OS; SMRU; SHEPD; ESRI
File Reference	J:\P2663\P2663K\Mxd_QGZ\02_MAMM\ P2663K-MAMM-002.mxd
Created By	Lewis Castle
Reviewed By	Emma Langley
Approved By	Aodhfin Coyle

Scottish & Southern Electricity Networks

intertek metoc

0 5 10 15 20 km

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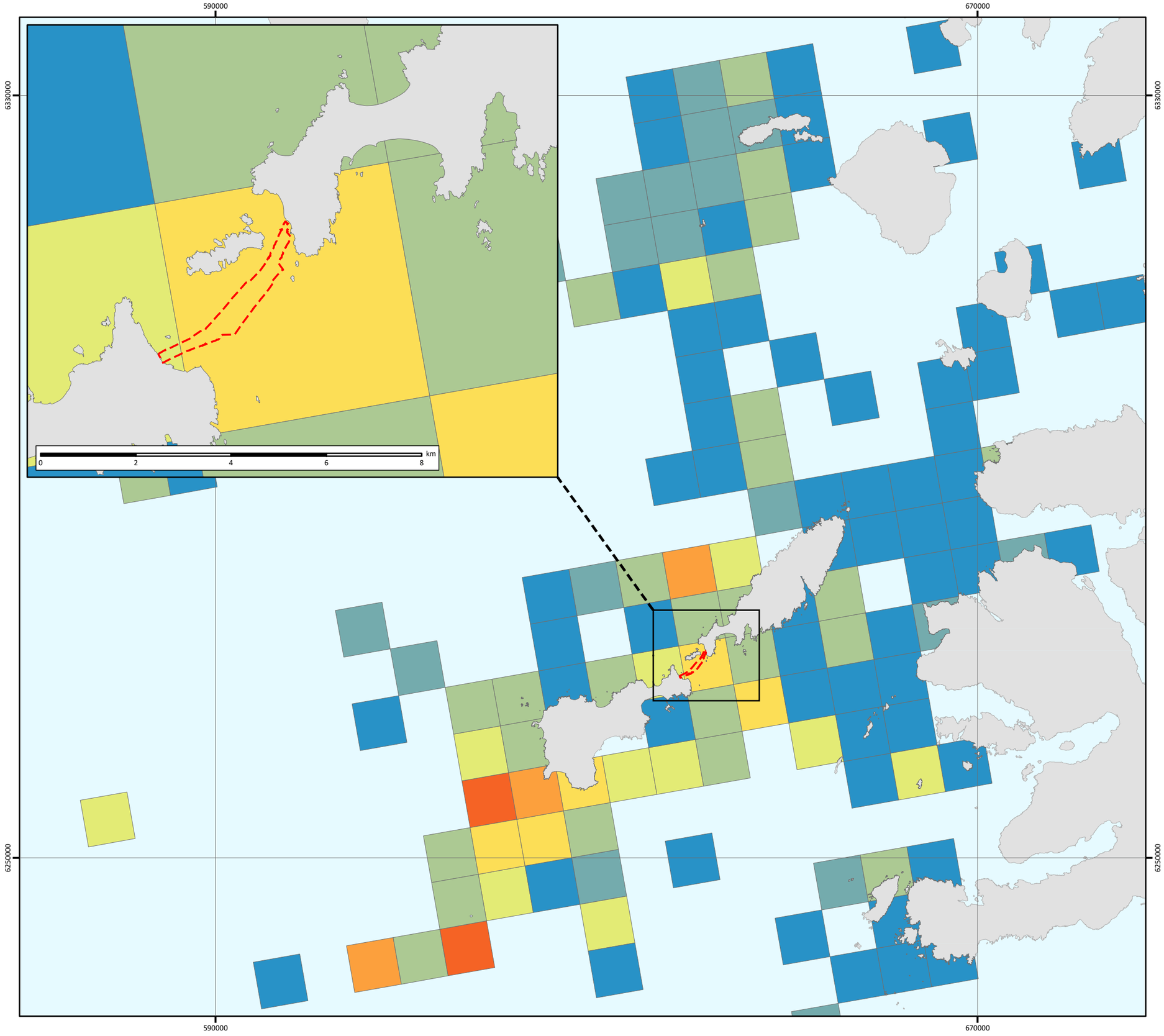
COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

FISH AND FISHING ACTIVITIES
Observed Adjusted Densities of Basking Shark (2000-2012)

Drawing No: P2663K-FISH-001 | **B**



Legend

Application Corridor

Observed Adjusted Densities

Encounter Rate

- 0.00 - 0.10
- 0.10 - 0.20
- 0.20 - 0.50
- 0.50 - 1.00
- 1.00 - 2.00
- 2.00 - 5.00
- 5.00 - 10.00
- > 10

N W E S

NOTE: Not to be used for Navigation

Date	20 January 2025
Coordinate System	WGS 1984 UTM Zone 29N
Projection	Transverse Mercator
Datum	WGS 1984
Data Source	OS; NS; SHEPD; ESRI
File Reference	J:\P2663\P2663K\Mxd_QGZ\03_FISH\ P2663K-FISH-001.mxd
Created By	Lewis Castle
Reviewed By	Lewis Castle
Approved By	Aodhfin Coyle

Scottish & Southern Electricity Networks

intertek metoc

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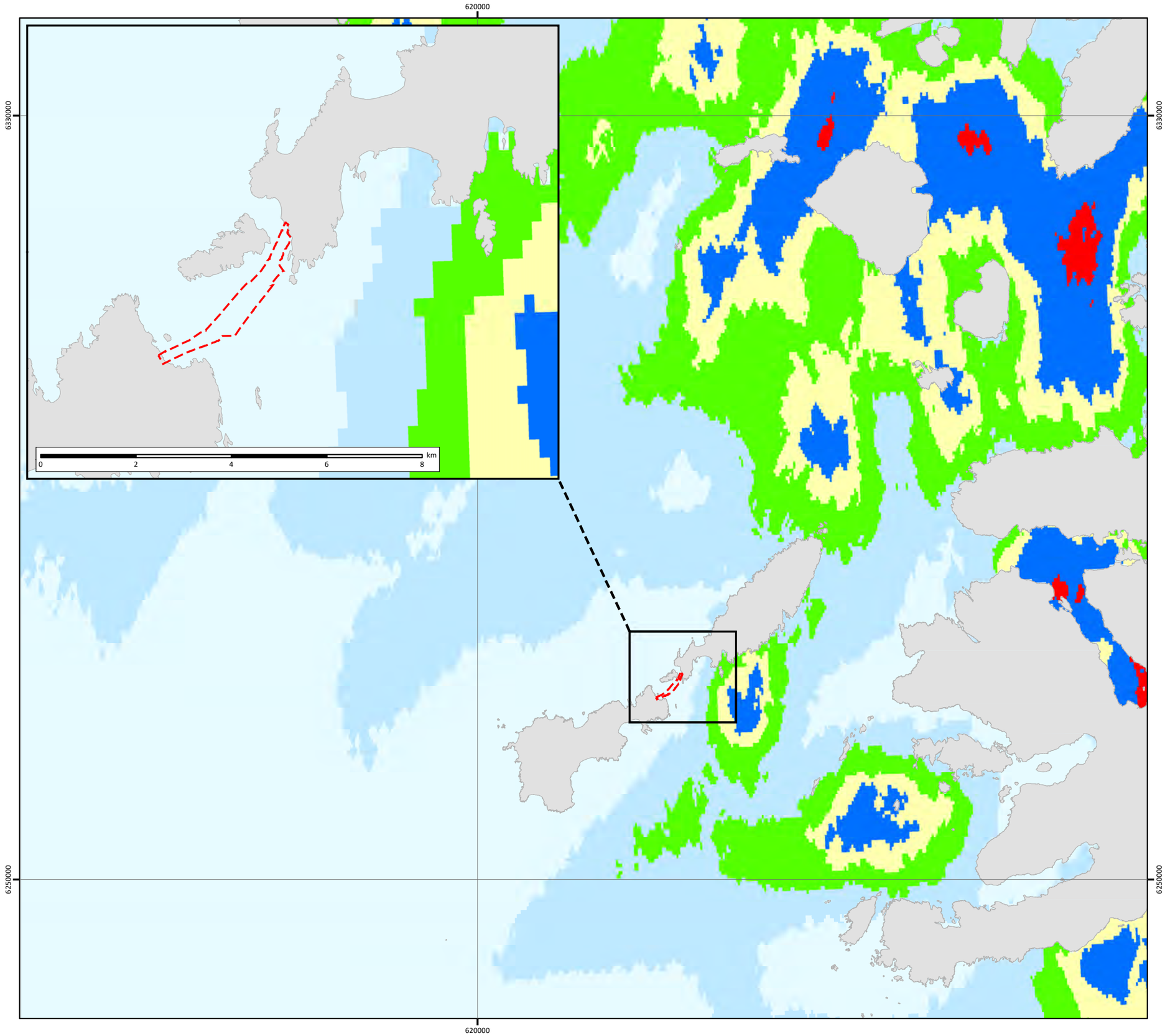

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

MARINE MAMMALS

Areas of Predicted High Density of Harbour Porpoise (visual) (2003 - 2010)

Drawing No: P2663K-MAMM-001 | **B**

Legend

Application Corridor

Areas of Predicted High Density

Predicted Density

- Top 50%
- Top 20%
- Top 15%
- Top 10%
- Top 5%

N W E S

NOTE: Not to be used for Navigation

Date	04 February 2025
Coordinate System	WGS 1984 UTM Zone 29N
Projection	Transverse Mercator
Datum	WGS 1984
Data Source	OS; NS; SHEPD; ESRI
File Reference	J:\P2663\P2663K\Mxd_QGZ\02_MAMM\ P2663K-MAMM-001.mxd
Created By	Lewis Castle
Reviewed By	Emma Langley
Approved By	Aodhfin Coyle

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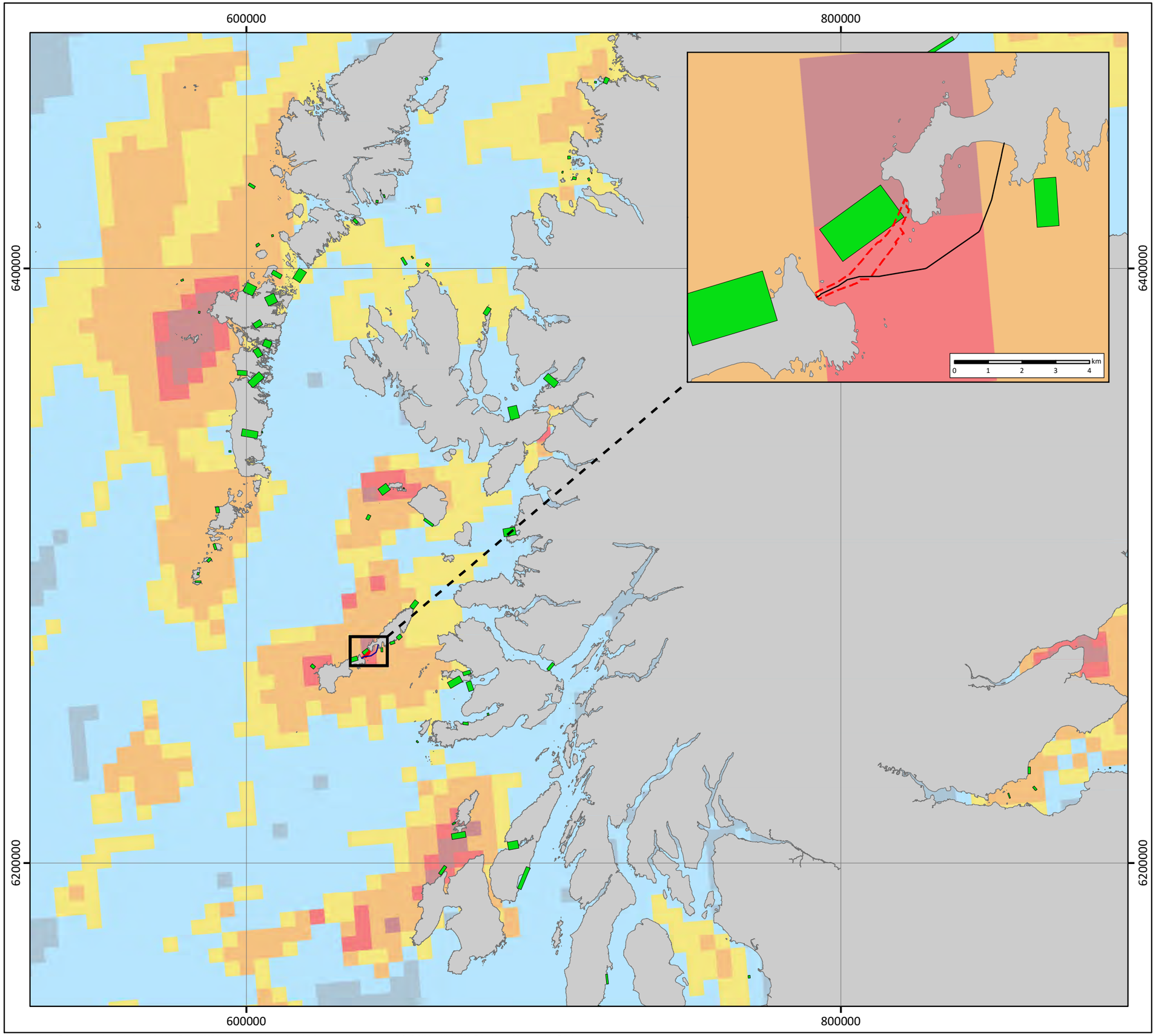

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

PELAGIC HABITATS

Density of Grey Seals Between 1991 and 2016

Drawing No: P2663K-HAB-002 | **B**

N
W E
S

Legend

RPL

Application Corridor

Grey Seal Density (5 km x 5 km)

- <=1
- 1 - 5
- 5 - 10
- 10 - 50
- 50 - 100
- >=100

Environmental Designations

Protected Seal Haul-out Site

NOTE: Not to be used for Navigation

Date	04 February 2025
Coordinate System	WGS 1984 UTM Zone 29N
Projection	Transverse Mercator
Datum	WGS 1984
Data Source	OS; GEBCO; SMRU; ESRI
File Reference	J:\P2663\P2663K\Mxd_QGZ\04_HAB\ P2663K-HAB-002.mxd
Created By	Lewis Castle
Reviewed By	Emma Langley
Approved By	Aodhfin Coyle

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0 20 40 60 80 km

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5.5.2 Vessel Presence

The presence of the installation vessels may pose a hazard of injury to bird, pinniped, cetacean and basking shark species as a result of collision risk. During the operation a maximum of six vessels are likely to be. Due to the potential presence of cetaceans, pinnipeds and seabirds within the Application Corridor these vessels therefore pose a hazard. However, all vessels utilised during this operation will adhere to the SMWWC such that any risks resulting from vessel presence are minimised where possible.

5.5.2.1 Coll and Tiree SPA

Conservation objectives

The conservation objectives of the Coll and Tiree SPA include ensuring that the qualifying features (great northern diver (*Gavia immer*) and common eider (*Somateria mollissima*)) are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status; and

To ensure that the integrity of the Coll and Tiree SPA is maintained in the context of environmental changes by meeting the following objectives for each qualifying feature:

- The populations of the qualifying features are viable components of the site.
- The distributions of the qualifying features throughout the site are maintained by avoiding significant disturbance of the species.
- The supporting habitats and processes relevant to the qualifying features and their prey/food resources are maintained.

Assessment against conservation objectives

There is potential for the great northern diver and common eider bird species protected within this site to be present within the Application Corridor, where they could face risks such as vessel collisions and potential disruptions to their foraging activities. However, the slow movement of the installation vessels (less than 4 knots) and the short-term, localised and temporary nature of the installation activities will reduce the likelihood of such impacts occurring as such that the Coll and Tiree SPA will remain unaffected.

5.5.2.2 Sleibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast) SPA

Conservation objectives

The conservation objectives of the Sleibhtean agus Cladach Thiriodh SPA include avoiding deterioration of the habitats of the qualifying species (dunlin (*Calidris alpina schinzii*), oystercatcher (*Haematopus ostralegus*), redshank (*Tringa totanus*), ringed plover (*Charadrius hiaticula*), Greenland barnacle goose (*Branta leucopsis*), Greenland white-fronted goose (*Anser albifrons flavirostris*), ringed plover (*Charadrius hiaticula*) and turnstone (*Arenaria interpres*) 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

Assessment against conservation objectives

Bird species protected within this site may also be present within the Application Corridor, where they could face risks such as vessel collisions and potential disruptions to their foraging activities. However,

the slow movement of the installation vessels (less than 4 knots) and the short-term, localised and temporary nature of the installation activities will reduce the likelihood of such impacts occurring as such that the Sleibhtean agus Cladach Thiriodh SPA will remain unaffected.

5.5.2.3 Sea of the Hebrides NCMPA

Conservation objectives

The conservation objectives of the Sea of Hebrides NCMPA are to ensure that protected features currently in favourable condition are maintained in this state, and that those features not yet in favourable condition are restored to, and sustained at, a favourable condition.

Assessment against conservation objectives

The Application Corridor is located within the Sea of Hebrides NCMPA. As presented in Figures 5-5 (Drawing ref: P2663K1-MAMM-002) and 5-6 (Drawing ref: P2663K1-FISH-001), minke whale density within the Application Corridor is 0.00-0.10 individuals per 25m^2 whilst basking shark density within the Application Corridor is 1-2 individuals per 25m^2. Therefore, within the immediate waters surrounding the proposed operation these species may experience some disturbance.

Due to the overlap between the Application Corridor and the Sea of Hebrides NCMPA these species may be at risk of collision with vessels during proposed operations. However, the installation vessels will be moving slowly at the rate of cable lay (less than 4 knots), or stationary utilising spud legs during the installation campaign and as such any individuals present within the Application Corridor will have a suitable amount of time to leave the area, therefore reducing the risk of collision. Therefore, the likelihood of collisions occurring are such that the Sea of Hebrides NCMPA conservation objectives will not be hindered.

5.5.2.4 Crossapol and Gunna SSSI

Conservation objectives

The conservation objectives of the Crossapol and Gunna SSSI include avoiding deterioration of the habitats of the qualifying features (dune habitats, machair, and species-rich grasslands) or significant disturbance to the qualifying features (Greenland white-fronted goose (*Anser albifrons flavirostris*) and Greenland barnacle goose (*Branta leucopsis*), thus ensuring that the integrity of the site is maintained; and
To ensure for the qualifying features that the following are maintained in the long term:

- Extent and distribution of the habitats within the site
- Structure, function, and supporting processes of the habitats
- Composition of the habitats, including characteristic species
- Connectivity and interactions between habitats
- No significant disturbance to the habitats or associated species

Assessment against conservation objectives

Bird species protected within this site may also be present within the Application Corridor, where they could face risks such as vessel collisions and potential disruptions to their foraging activities. However, the slow movement of the installation vessels (less than 4 knots) and the short-term, localised and temporary nature of the installation activities will reduce the likelihood of such impacts occurring as such that the Crossapol and Gunna SSSI will remain unaffected.

5.5.2.5 Coll SPA

Conservation objectives

The conservation objectives of the Coll SPA include avoiding deterioration of the habitats of the qualifying species (Greenland white-fronted Goose (*Anser albifrons flavirostris*) and Greenland barnacle Goose (*Branta leucopsis*)) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

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

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

Assessment against conservation objectives

Bird species protected within this site may also be present within the Application Corridor, where they could face risks such as vessel collisions and potential disruptions to their foraging activities. However, the slow movement of the installation vessels (less than 4 knots) and the short-term, localised and temporary nature of the installation activities will reduce the likelihood of such impacts occurring as such that the Coll SPA will remain unaffected.

5.5.2.6 Inner Hebrides and the Minches SAC

Conservation objectives

To ensure that the SAC continues to contribute effectively to the favourable conservation status of harbour porpoise. Additionally, to ensure that the sites integrity is maintained through the following:

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

Assessment against conservation objectives

The density of harbour porpoise within the Application Corridor is estimated to be within the top 50% of the UK population (Figure 5-4, Drawing reference: P2663K1-MAMM-001). Due to the proximity between the Application Corridor and the Inner Hebrides and the Minches SAC, these individuals may therefore be at risk of collision with vessels during proposed operations. However, the installation vessels will be moving slowly at the rate of cable lay (less than 4 knots), or stationary utilising spud legs during the installation campaign and as such harbour porpoise within the Application Corridor will have a suitable amount of time to leave the area, therefore reducing the risk of collision. As a result, the likelihood of collisions occurring are low enough that it will not result in any LSE for the Inner Hebrides and the Minches SAC .

5.5.2.7 Coll (corncrake) SPA

Conservation objectives

The conservation objectives of the Coll (corncrake) SPA include avoiding deterioration of the habitats of the qualifying species (corncrake, *Crex Crex*)) 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

Assessment against conservation objectives

There is potential for the corncrake bird species protected within this site to be present within the Application Corridor. Although corncrake are a primarily terrestrial species, installation vessels located close to shore may prove a collision risk. However, due to the slow movement of the installation vessels (less than 4 knots), and the short-term, localised and temporary nature of the installation activities, as well as the low likelihood of this species being present at sea where a majority of installation activities are occurring, impacts to corncrake from vessel presence are unlikely such that the Coll (corncrake) SPA will remain unaffected.

5.5.2.8 Tiree (corncrake) SPA

Conservation objectives

The conservation objectives of the Tiree (corncrake) SPA include avoiding deterioration of the habitats of the qualifying species (corncrake, *Crex crex*)) 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

Assessment against conservation objectives

There is potential for the corncrake bird species protected within this site to be present within the Application Corridor. Although corncrake are a primarily terrestrial species, installation vessels located close to shore may prove a collision risk. However, due to the slow movement of the installation vessels (less than 4 knots), and the short-term, localised and temporary nature of the installation activities, as well as the low likelihood of this species being present at sea where a majority of installation activities are occurring, impacts to corncrake from vessel presence are unlikely such that the Tiree (corncrake) SPA will remain unaffected.

5.5.2.9 Treshnish Isles SAC

Conservation objectives

To avoid deterioration of the qualifying habitat thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and

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

- Extent of the habitat on site
- Distribution of the habitat within site
- Structure and function of the habitat
- Processes supporting the habitat

- Distribution of typical species of the habitat
- Viability of typical species as components of the habitat
- No significant disturbance of typical species of the habitat

Assessment against conservation objectives

Within the Application Corridor grey seals may be present at high densities of 50-100 individuals per 25km^2 (Figure 5-2, Drawing reference: P2663K1-HAB-002). Given the mobile nature of grey seals, there is potential for individuals to be present within this area. Consequently, there is a risk of collision with vessels during proposed operations. However, the installation vessels will be moving slowly at the rate of cable lay (less than 4 knots), or will be stationary utilising spud legs during the installation campaign and as such grey seals within the Application Corridor will have a suitable amount of time to leave the area, therefore reducing the risk of collision. As a result, the likelihood of collisions occurring are low enough that the Treshnish Isles SAC will remain unaffected.

5.5.2.10 Treshnish Isles SPA

Conservation objectives

The conservation objectives of the Treshnish Isles SPA are to avoid deterioration of the habitats of the qualifying species (Greenland barnacle goose (*Branta leucopsis*) and European storm petrel (*Hydrobates pelagicus*) 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

Assessment against conservation objectives

Individuals protected within this site may be present within the Application Corridor, where they could face risks such as vessel collisions and potential disruptions to their foraging activities. However, the slow movement (less than 4 knots) or stationary location of the installation vessels and the short-term, localised and temporary nature of the installation activities will reduce the likelihood of such impacts occurring as such that there will be no LSE to the Treshnish Isles SPA

5.5.2.11 Treshnish Isles SSSI

Conservation objectives

The conservation objectives of Treshnish Isles SSSI are to maintain or restore the ecological integrity and favourable condition of the site's key features.

Assessment against conservation objectives

Within the Application Corridor grey seals may be present at high densities of 50-100 individuals per 25km^2 (Figure 5-2, Drawing reference: P2663K1-HAB-002). Given the mobile nature of grey seals, there is potential for them to be present within this area. Consequently, there is a risk of collision with vessels during proposed operations. However, the installation vessels will be moving slowly at the rate of cable lay (less than 4 knots), or will be stationary utilising spud legs during the installation campaign and as such harbour porpoise within the Application Corridor will have a suitable amount of time to leave the area, therefore reducing the risk of collision. As a result, the likelihood of collisions

occurring are low enough that the conservation objectives of the Treshnish Isles SSSI will not be hindered.

Bird species protected within this site may also be present within the Application Corridor, where they could face risks such as vessel collisions and potential disruptions to their foraging activities. However, the slow movement (less than 4 knots) or stationary location of the installation vessels and the short-term, localised and temporary nature of the installation activities will reduce the likelihood of such impacts occurring as such that the Treshnish Isles SSSI conservation objectives will not be hindered.

5.5.2.12 Staffa SSSI

Conservation objectives

- The Conservation objectives of the Staffa SSSI are:
- Maintain the maritime cliff feature of Staffa SSSI in favourable condition.
- Maintain suitable habitat and conditions for important seabird populations.

Assessment against conservation objectives

There is the possibility for protected features of this site to be present within the Application Corridor where they may be at risk of collision with vessels and disruptions to their foraging activities may occur. However, the slow movement (less than 4 knots) or stationary location of the installation vessels and the short-term, localised and temporary nature of the installation activities will reduce the likelihood of such impacts occurring such that the Staffa SSSI conservation objectives will not be hindered.

5.5.2.13 Rum SPA

Conservation objectives

The conservation objectives of the Rum SPA include avoiding deterioration of the habitats of the qualifying species (golden Eagle (*Aquila chrysaetos*), guillemot (*Uria aalge*), kittiwake (*Rissa tridactyla*), Manx shearwater (*Puffinus puffinus*), and red-throated diver (*Gavia stellata*)) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

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

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

Assessment against conservation objectives

Individuals protected within this site may be present within the Application Corridor, where they could face risks such as vessel collisions and potential disruptions to their foraging activities. However, the slow movement (less than 4 knots) or stationary location of the installation vessels and the short-term, localised and temporary nature of the installation activities will reduce the likelihood of such impacts occurring as such that there will be no LSE to the Treshnish Isles SPA.

5.5.3 Visual (and above water noise) disturbance

The presence of the installation vessels can result in potential impacts to bird, cetacean and pinniped species both within the waters of the Application Corridor and at the landfall sites. The potential

impacts include disturbances to foraging, nesting and breeding behaviours as well as consequential affects to the species reproductive success and fitness.

5.5.3.1 Coll and Tiree SPA

Conservation objectives

The conservation objectives of the Coll and Tiree SPA include ensuring that the qualifying features (great northern diver (*Gavia immer*) and common eider (*Somateria mollissima*)) are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status; and

To ensure that the integrity of the Coll and Tiree SPA is maintained in the context of environmental changes by meeting the following objectives for each qualifying feature:

- The populations of the qualifying features are viable components of the site.
- The distributions of the qualifying features throughout the site are maintained by avoiding significant disturbance of the species.
- The supporting habitats and processes relevant to the qualifying features and their prey/food resources are maintained.

Assessment against conservation objectives

Visual and above water noise disturbance from the presence of vessels has the potential to disrupt feeding behaviours of bird species and reduce access to food resources. Potential disturbances can cause them to alter their feeding behaviour or abandon feeding areas thus impacting their energy intake and overall fitness. However, great northern diver are known to tolerate vessels travelling at slow to moderate speeds (Gittings *et al.,* 2015), and within Orkney are found frequently in areas of regular marine activity (Jarrett *et al.,* 2018) thus indicating that the sensitivity of great northern diver to disturbance is low. In addition, common eider are known to have a very low response rate to passing ferries and are evidenced to habituate to high levels of disturbances (Goodship and Furness, 2022). Since installation activities will be temporary and only transit through foraging areas for a short period of time, although individual birds may be temporarily disturbed, they will be able to quickly return to any utilised feeding areas. Furthermore, given the evidence of habituation of bird species to vessel presence, as outlined by Schwemmer *et al.* (2011), and the baseline shipping density in the vicinity of the Application Corridor, the likelihood of significant impacts occurring are low such that the Coll and Tiree SPA will remain unaffected.

5.5.3.2 Sleibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast) SPA

Conservation objectives

The conservation objectives of the Sleibhtean agus Cladach Thiriodh SPA include avoiding deterioration of the habitats of the qualifying species (dunlin (*Calidris alpina schinzii*), oystercatcher (*Haematopus ostralegus*), redshank (*Tringa totanus*), ringed plover (*Charadrius hiaticula*), Greenland barnacle goose (*Branta leucopsis*), Greenland white-fronted goose (*Anser albifrons flavirostris*), ringed plover (*Charadrius hiaticula*) and turnstone (*Arenaria interpres*)) 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

Assessment against conservation objectives

Visual and above water noise disturbance from the presence of vessels has the potential to disrupt feeding behaviours of bird species and reduce access to food resources. Potential disturbances can cause them to alter their feeding behaviour or abandon feeding areas thus impacting their energy intake and overall fitness. However, since installation activities will be temporary and only transit through foraging areas for a short period of time, although individual birds may be temporarily disturbed, they will be able to quickly return to any utilised feeding areas. Furthermore, given the evidence of habituation of bird species to vessel presence, as outlined by Schwemmer *et al.* (2011), and the baseline shipping density in the vicinity of the Application Corridor, the likelihood of significant impacts occurring are low such that the Sleibhtean agus Cladach Thiriodh SPA will remain unaffected.

5.5.3.3 Crossapol and Gunna SSSI

Conservation objectives

The conservation objectives of the Crossapol and Gunna SSSI include avoiding deterioration of the habitats of the qualifying features (dune habitats, machair, and species-rich grasslands) or significant disturbance to the qualifying features (Greenland white-fronted goose (*Anser albifrons flavirostris*) and Greenland barnacle goose (*Branta leucopsis*), thus ensuring that the integrity of the site is maintained; and

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

- Extent and distribution of the habitats within the site
- Structure, function, and supporting processes of the habitats
- Composition of the habitats, including characteristic species
- Connectivity and interactions between habitats
- No significant disturbance to the habitats or associated species

Assessment against conservation objectives

Visual and above water noise disturbance from the presence of vessels has the potential to disrupt feeding behaviours of bird species and reduce access to food resources. Potential disturbances can cause them to alter their feeding behaviour or abandon feeding areas thus impacting their energy intake and overall fitness. However, since installation activities will be temporary and only transit through foraging areas for a short period of time, although individual birds may be temporarily disturbed, they will be able to quickly return to any utilised feeding areas. Furthermore, given the evidence of habituation of bird species to vessel presence, as outlined by Schwemmer *et al.* (2011), and the baseline shipping density in the vicinity of the Application, the likelihood of significant impacts occurring are low such that the Crossapol and Gunna SSSI will remain unaffected.

5.5.3.4 Coll SPA

Conservation objectives

The conservation objectives of the Coll SPA include avoiding deterioration of the habitats of the qualifying species (Greenland white-fronted goose (*Anser albifrons flavirostris*) and Greenland barnacle goose (*Branta leucopsis*)) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

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

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

- No significant disturbance of the species

Assessment against conservation objectives

Visual and above water noise disturbance from the presence of vessels has the potential to disrupt feeding behaviours of bird species and reduce access to food resources. Potential disturbances can cause them to alter their feeding behaviour or abandon feeding areas thus impacting their energy intake and overall fitness. However, since installation activities will be temporary and only transit through foraging areas for a short period of time, although individual birds may be temporarily disturbed, they will be able to quickly return to any utilised feeding areas. Furthermore, given the evidence of habituation of bird species to vessel presence, as outlined by Schwemmer *et al.* (2011), and the baseline shipping density in the vicinity of the Application Corridor, the likelihood of significant impacts occurring are low such that the Coll SPA will remain unaffected.

5.5.3.5 Coll (corncrake) SPA

Conservation objectives

The conservation objectives of the Coll (corncrake) SPA include avoiding deterioration of the habitats of the qualifying species (corncrake, *Crex Crex*) 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

Assessment against conservation objectives

Visual and above water noise disturbance from the presence of vessels has the potential to disrupt feeding behaviours of bird species and reduce access to food resources. Potential disturbances can cause them to alter their feeding behaviour or abandon feeding areas thus impacting their energy intake and overall fitness. However, since installation activities will be temporary and only transit through foraging areas for a short period of time, although individual birds may be temporarily disturbed, they will be able to quickly return to any utilised feeding areas. Furthermore, given the evidence of habituation of bird species to vessel presence, as outlined by Schwemmer *et al.* (2011), and the baseline shipping density in the vicinity of the Application Corridor, the likelihood of significant impacts occurring are low such that the Coll (corncrake) SPA will remain unaffected.

5.5.3.6 Tiree (corncrake) SPA

Conservation objectives

The conservation objectives of the Tiree (corncrake) SPA include avoiding deterioration of the habitats of the qualifying species (corncrake, *Crex crex*)) 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

Assessment against conservation objectives

Visual and above water noise disturbance from the presence of vessels has the potential to disrupt feeding behaviours of bird species and reduce access to food resources. Potential disturbances can cause them to alter their feeding behaviour or abandon feeding areas thus impacting their energy intake and overall fitness. However, since installation activities will be temporary and only transit through foraging areas for a short period of time, although individual birds may be temporarily disturbed, they will be able to quickly return to any utilised feeding areas. Furthermore, given the evidence of habituation of bird species to vessel presence, as outlined by Schwemmer *et al.* (2011), and the baseline shipping density in the vicinity of the Application, the likelihood of significant impacts occurring are low such that the Tiree (corncrake) SPA will remain unaffected.

5.5.3.7 Treshnish Isles SPA

Conservation objectives

The conservation objectives of the Treshnish Isles SPA are to avoid deterioration of the habitats of the qualifying species (Greenland barnacle goose, *Branta leucopsis,* and European storm petrel, *Hydrobates pelagicus*) 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

Assessment against conservation objectives

Visual and above water noise disturbance from the presence of vessels has the potential to disrupt feeding behaviours of bird species and reduce access to food resources. Potential disturbances can cause them to alter their feeding behaviour or abandon feeding areas thus impacting their energy intake and overall fitness. However, since installation activities will be temporary and only transit through foraging areas for a short period of time, although individual birds may be temporarily disturbed, they will be able to quickly return to any utilised feeding areas. Furthermore, given the evidence of habituation of bird species to vessel presence, as outlined by Schwemmer *et al.* (2011), and the baseline shipping density in the vicinity of the Application Corridor, the likelihood of significant impacts occurring are low such that the Treshnish Isles SPA will remain unaffected.

5.5.3.8 Treshnish Isles SSSI

Conservation objectives

The conservation objectives of Treshnish Isles SSSI are to maintain or restore the ecological integrity and favourable condition of the site's key features.

Assessment against conservation objectives

Seals were observed in the vicinity of the Application Corridor during the OceanIQ (2023) Cable route desktop study and grey seals protected within the Treshnish Isles SSSI may be present within the Gunna, Vaul & Salum Bays and Soa (Coll) seal haul out sites located within, 1.3km west and 3.8km east of the Application Corridor, respectively, due to the species transient nature. Notably, the Gunna seal haul out site, which overlaps the Application Corridor, is a designated seal haul out site for both

harbour and grey seals, and is identified as grey seal breeding site. As noted within the EPS Protected sites and Species Risk Assessment (Appendix C), with cable installation scheduled for summer and the installation of cable protection measures with potential to extend into September, the proposed activities may coincide with the sensitive periods for grey seals whose pupping season occurs from September to January. Given that a mitigation zone of 500m for hauled out seals is advised (SCOS, 2021), the visual disturbance of the installation vessels within the Application Corridor may cause hauled out seals to be disturbed by the vessels utilised during this operation and has the potential to disturb breeding grey seals thus leading to potential impacts to breeding success. However, the installation activities will be short-term, localised and temporary and thus disturbance to hauled out seals will be minimal. Further, surveys undertaken in this region have not noted disturbance to hauled out seals. There is evidence of habituation behaviours in seals, with seals observed to be less likely to flush into the water from haul out sites in areas with a high density of passing vessels (Olsen *et al.,* 2017). Given the baseline shipping density in the vicinity of the Application Corridor, disturbance to seals is not expected to be significant and significant impacts on the breeding of grey seals is not expected. Further assessment of the impacts to seal haul-out sites within the vicinity of the Application Corridor is provided in Section 7.

Additionally, visual and above water noise disturbance from the presence of vessels has the potential to disrupt feeding behaviours of bird species and reduce access to food resources. Potential disturbances can cause them to alter their feeding behaviour or abandon feeding areas thus impacting their energy intake and overall fitness. However, since installation activities will be temporary and only transit through foraging areas for a short period of time, although individual birds may be temporarily disturbed, they will be able to quickly return to any utilised feeding areas. Furthermore, given the evidence of habituation of bird species to vessel presence, as outlined by Schwemmer *et al.* (2011), and the baseline shipping density in the vicinity of the Application Corridor, the likelihood of significant impacts occurring are low such that the Treshnish Isles SSSI will remain unaffected.

5.5.3.9 Staffa SSSI

Conservation objectives

- The Conservation objectives of the Staffa SSSI are:
- Maintain the maritime cliff feature of Staffa SSSI in favourable condition.
- Maintain suitable habitat and conditions for important seabird populations.

Assessment against conservation objectives

Visual and above water noise disturbance from the presence of vessels has the potential to disrupt feeding behaviours of bird species and reduce access to food resources. Potential disturbances can cause them to alter their feeding behaviour or abandon feeding areas thus impacting their energy intake and overall fitness. However, since installation activities will be temporary and only transit through foraging areas for a short period of time, although individual birds may be temporarily disturbed, they will be able to quickly return to any utilised feeding areas. Furthermore, given the evidence of habituation of bird species to vessel presence, as outlined by Schwemmer *et al.* (2011), and the baseline shipping density in the vicinity of the Application Corridor, the likelihood of significant impacts occurring are low such that the Staffa SSSI will remain unaffected.

5.5.3.10 Rum SPA

Conservation objectives

The conservation objectives of the Rum SPA include avoiding deterioration of the habitats of the qualifying species (golden eagle (*Aquila chrysaetos*), guillemot (*Uria aalge*), kittiwake (*Rissa tridactyla*), Manx shearwater (*Puffinus puffinus*), and red-throated diver (*Gavia stellata*)) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

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

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

Assessment against conservation objectives

Visual and above water noise disturbance from the presence of vessels has the potential to disrupt feeding behaviours of bird species and reduce access to food resources. Potential disturbances can cause them to alter their feeding behaviour or abandon feeding areas thus impacting their energy intake and overall fitness. However, since installation activities will be temporary and only transit through foraging areas for a short period of time, although individual birds may be temporarily disturbed, they will be able to quickly return to any utilised feeding areas. Furthermore, given the evidence of habituation of bird species to vessel presence, as outlined by Schwemmer *et al.* (2011), and the baseline shipping density in the vicinity of the Application Corridor, the likelihood of significant impacts occurring are low such that the Rum SPA will remain unaffected.

5.5.4 Physical Change

During the installation activities, physical change will occur due to the installation of:

- The cable
- Cast iron split pipe
- Concrete mattresses
- Rock bags, and
- Clump weights

The installation of the cable and associated protection and stabilisation measures, as well as the onshore activities at the landfalls has the potential to effect designated geomorphology, as well as habitat for certain designated species.

5.5.4.1 Coll Machair SAC

Conservation objectives

The conservation objectives for the Coll Machair SAC focus on protecting its key features: coastal sand dunes, machair plains, and associated wetlands. These objectives aim to:

- Maintain the physical and biological conditions supporting the protected features to ensure their resilience and sustainability.
- Protect the flora and fauna associated with these habitats, ensuring the survival of species that depend on these unique ecosystems.
- Avoid activities that could negatively impact these habitats, such as erosion, pollution, or habitat loss from development.

Assessment against conservation objectives

The Application Corridor overlaps the Coll Machair SAC and although the site is designated primarily for onshore terrestrial features, these features have the potential to be impacted by the onshore construction activities occurring at the Coll landfall. During the cable installation a new Transitional

Joint Pit (TJP) is to be constructed which has the potential to result in an onshore area of impact up to 100m^2, based on previous TJP constructions. The coastal sand dune, machair plains, and associated wetland features of the Coll Machair SAC therefore have the potential to be impacted. However, the cable installation will utilise an existing landfall location thus minimising the extent of onshore construction and need for new access routes. Specific mitigation will also be in place to minimise the environmental footprint of construction activities. As such, the Coll Machair SAC is not expected to experience any significant affects.

5.5.4.2 Sea of the Hebrides NCMPA

Conservation objectives

The conservation objectives for the Sea of the Hebrides NCMPA are to conserve the designated features in order to make a long-lasting contribution to the MPA network.

Assessment against conservation objectives

The Application Corridor is present within the Sea of the Hebrides NCMPA, designated for marine geomorphology of the Scottish shelf seabed.

During the operation, physical change of the seabed will occur due to the installation of the cable, albeit predominantly surface laid, with shallow burial in areas of sand ripples near Coll, and associated protection and stabilisation measures. This has the potential to lead to permanent seabed substrate (habitat) loss. The site also contains the Inner Hebrides Carbonate Production Area, which generates carbon-rich sediments that encourage PMF habitats such as maerl beds (NatureScot, 2024).

However, given that the cable will be predominantly surface laid, disturbance from direct substratum loss is expected to be highly localised in extent, limited to the footprint of the cable, and any rock bags or concrete mattresses, if required. Furthermore, the cable route and use of cable protection deposits have been optimised, this includes the use of cable stabilisation measures, and the cable will be micro-routed to avoid any PMF habitats wherever possible, therefore avoiding disturbance to carbon-rich sediments, where feasible. Therefore, it is unlikely that there will be any significant impacts from physical changes to the geomorphology within the Sea of the Hebrides NCMPA, which is one of the primary designated features of this site. Therefore, overall the Sea of Hebrides NCMPA is expected to remain unaffected.

5.5.5 Abrasion / Disturbance at the Surface of the Substratum

During the installation activities, abrasion or disturbance at the surface of the substratum may occur due to the installation of:

- The cable
- Cast iron split pipe
- Concrete mattresses
- Anchor chains
- Rock bags, and
- Clump weights

The installation of the cable and associated protection and stabilisation measures has the potential to effect designated geomorphology.

5.5.5.1 Sea of the Hebrides NCMPA

Conservation objectives

The conservation objectives for the Sea of the Hebrides NCMPA are to conserve the designated features in order to make a long-lasting contribution to the MPA network.

Assessment against conservation objectives

The Application Corridor is present within the Sea of the Hebrides NCMPA, and therefore abrasion or disturbance at the surface of the substratum may occur through the installation of the cable and any associated protection measures. The Application Corridor crosses some areas of sandwaves, which are considered one of the individual components of this designated feature. These features are considered to have a medium sensitivity to removal of sediment. The site also contains the Inner Hebrides Carbonate Production Area, which generates carbon-rich sediments that encourage PMF habitats such as maerl beds (NatureScot, 2024).

However, any disturbance to the substrate will affect a very small amount of the geomorphology of the site only, limited to the footprint of the cable, and any rock bags or concrete mattresses if required. Additionally, the cable will be micro routed to avoid any PMF habitats and as much of the carbon-rich sediments as possible. Any sediment disturbed will also not be removed from the site, but will be redistributed to within 100m of the Application Corridor (Gooding *et al.*, 2012) and as such will stay within the system. Considering the size of the Project footprint, detailed in Table 4-2, it is unlikely that there will be any significant impacts from abrasion or disturbance to the substrate to the geomorphology at this site and the Sea of the Hebrides NCMPA is not expected to experience any significant affects.

5.6 Conclusion

The above assessment has demonstrated that installation activities associated with the cable replacement will not significantly cause adverse effects to the conservation objectives of any designated site within or in the vicinity of the Application Corridor. Any disturbance caused by the installation of the cable will be minor and temporary due to the short-term, localised and temporary nature of the activities.

6. SEABED AND WATER QUALITY

6.1 Introduction

This Section characterises the seabed and water quality conditions influencing the baseline environment, outlines the potential impacts associated with the cable installation activities on the seabed and water quality and presents the findings of the environmental assessment.

6.2 Data Sources

OceaniQ, Briggs Marine and Aspect Ltd has undertaken geophysical and environmental surveys to provide an overview of the seabed conditions along the Application Corridor. The following reports, which were developed from these surveys, were used to inform this Section:

The baseline has been informed using the following primary sources:

- Coll to Tiree Cable Route Desktop Study (OceanIQ, 2023)
- Environmental Intertidal Survey Report Phase 2: Isle of Lewis and Coll-Tiree (Benthic Solutions Ltd, 2023)
- A9295 Gunna Sound Coll-Tiree Report of Survey Rev0 (Aspect, 2024)
- Habitat Assessment Survey Report – Coll – Tiree (Briggs Marine Contractors Ltd., 2023).

In order to establish baseline conditions a desktop review of published information has been undertaken supported by consultation with relevant bodies. Consultations completed as part of this application are summarised in Section 1.5. Any other data sources used are referenced throughout the document.

6.3 Seabed and Water Quality Description

6.3.1 Seabed Quality

The water depth along the Coll-Tiree route is 17.5m at the deepest point (OceaniQ, 2023). Within the Application Corridor water depth ranges from 0 to 17.5m (Aspect, 2024). A number of faults have been observed in the bathymetry along the Tiree passage. The fault closest to the Application Corridor has been identified as the Skerryvore Fault. However, these faults are not expected to impact the Project (OceaniQ, 2023).

The Isle of Coll and the Isle of Tiree are both part of the Lewisian Complex, which features a diverse geological composition. This includes a series of metamorphic gneisses with varied lithologies of metasedimentary and metaigneous rocks, dating back 541 million to 4 billion years, from the Proterozoic and Archaean eons. Geology at the proposed landings of both the Isle of Coll and the Isle of Tiree is solid, consisting of a top layer of Quaternary Blown Sand (OceaniQ, 2023).

Due to the remote location of the route, the BGS charts of seabed sediment types around the UK do not include the Coll-Tiree route. However, nearby data indicates the seabed consists of sandy gravel (BGS, 2023). Similarly, the Habitat Assessment Survey Report (Briggs Marine Contractors Ltd., 2023) identified sandy gravel as the primary sediment type across the Coll-Tiree survey area. On the Coll side, the sediment was described as coarser gravelly sand, becoming finer towards the Tiree side.(Briggs Marine Contractors Ltd., 2023).

An analysis of the bathymetry along the Coll-Tiree route, conducted as part of the Cable Route Desktop Study (OceaniQ, 2023), indicated that large-scale bedforms are unlikely to be present in the area. This was attributed to the limited availability of substantial quantities of sediment nearby.

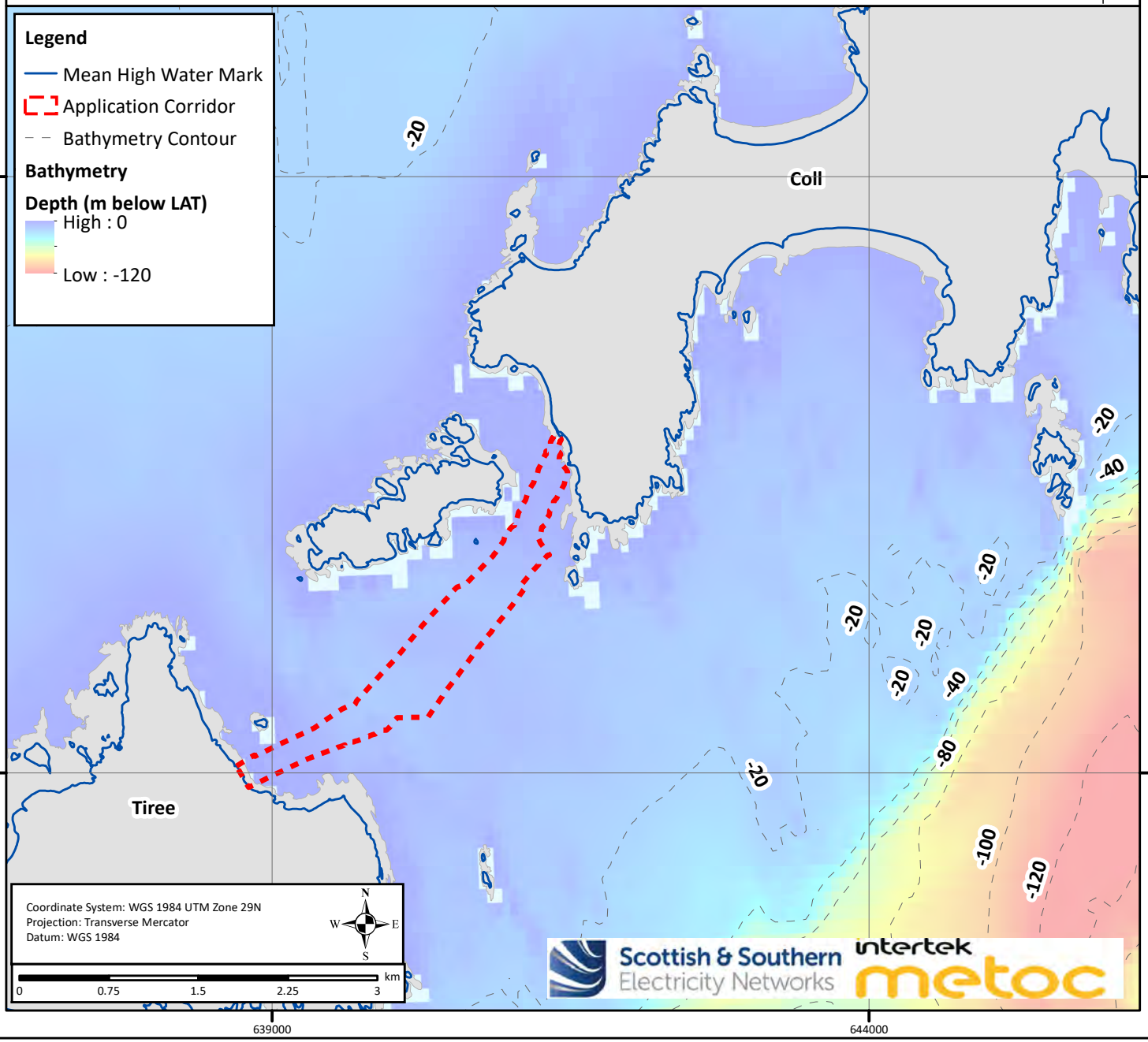
Natural and anthropogenic compounds can result in seabed contamination. Anthropogenic contamination is entirely dependent on the level of development at the nearshore areas of the Application Corridor. Natural and anthropogenic compounds can result in seabed contamination. Anthropogenic contamination is entirely dependent on the level of development at the nearshore areas of the Application Corridor. However, the only identified anthropogenic sources of contaminants in the area were shipwrecks sunk by gunfire during World War I. Consequently, anthropogenic contributions to sediment contamination in the Coll-Tiree region are considered negligible (OceaniQ, 2023).

The bathymetry of the Application Corridor is displayed in Figure 6-1 (Drawing reference: P2663-BATH-001).

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

BATHYMETRY - EMODnet Bathymetry Within Application Corridor

Drawing No: P2663K-BATH-001 | B



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6.3.2 Water Quality

The European Union (EU) Marine Strategy Framework Directive (MSFD) adopted in 2008 requires that the UK takes "the necessary measures to achieve or maintain "Good Environmental Status" in the marine environment (Buckley *et al*., 2010). The majority of water across Coll and Tiree are of a good environmental status (SEPA, 2010).

The requirement for monitoring UK rivers and near-shore waters has increased as a result of the implementation of the EU Water Framework Directive (WFD), with more stringent criteria for water quality in rivers applied. River Basin Management Plans (RBMP) are being developed as a requirement of the WFD and report on the 'ecological status' of surface and ground water in coastal waters (out to 1 nautical mile (nm) from the baseline) and 'chemical status' of surface and ground waters in territorial waters (out to 12nm from the baseline). SEPA is responsible for producing RBMPs for the Scotland and the Solway Tweed River Basin Districts. The MSFD assessments are carried out at subregion level, i.e. the Greater North Sea and the Celtic Seas. The MSFD and WFD overlap in coastal waters as the WFD extends to three nm seaward from the Scottish territorial baseline. Any proposed development within these waters must have regards to the WFD and ensure that all surface water bodies achieve 'Good Ecological Status (GES)' and that there is no deterioration in status.

Scottish Environmental Protection Agency (SEPA) classifies the water quality within and surrounding the Application Corridor to be ''good' (SEPA, 2010). There are no known bathing waters located within the vicinity of the Application Corridor, with the closest bathing water located 75km to the northwest.

There are no designated Shellfish Waters within the Application Corridor, the closest is located 22km to the northwest.

6.4 Impact Assessment

The Coll-Tiree replacement cable will be predominantly surface-laid, with only a few sections (in areas of sand ripples) potentially being buried, as well as at landfalls. Therefore, no significant disturbance to underlying geological features in the area is expected and the activities will not result in significant sediment resuspension. The seabed footprint of the works will be minimal, and largely confined to the physical footprint of the cable itself, along with the potential for cable protection measures such as concrete mattresses, split pipe, rock bags, and clump weights. Additional seabed footprint may result from burial activities in the intertidal area. No changes to water flow or levels of suspended solids are expected and as such potential effects on water quality have not been taken forward for further assessment. Associated impacts on benthic and intertidal features are discussed in Section 8.

6.4.1 Physical Change (to Another Substratum)

Physical change to the seabed within the proposed Application Corridor may arise from installation activities such as cable laying and potential placement of protective deposits on the seabed, which has the potential to lead to permanent seabed substrate (habitat) loss.

This could modify sediment supply and movement of presently occurring bedforms within the Application Corridor. Loss of substrate will result from the footprint of the cable on the seabed, while bedform alteration may occur from laying the cable towards the landfalls on Coll and Tiree.

Given that the cable will be majority surface laid, disturbance from direct substratum loss is expected to be highly localised in extent, limited to the footprint of the cable, and any rock bags or concrete mattresses if required. Furthermore, the cable route and use of cable protection deposits have been optimised to minimise their impact on sensitive benthic features, this includes the use of cable stabilisation measures.

Overall, given the small footprint of the cable installation activities (as defined in Section 4, Table 4-2), significant loss of habitat or features are unlikely to occur.

6.4.2 Abrasion / Disturbance at the Surface of the Substratum

The seabed could be disturbed due to the installation activities, such as cable laying and, potential burial in sand ripple areas, trenching in the intertidal area, and operational activities, such as cable remedial works, which have the potential to result in damage to the seabed. Use of protective measures such as articulated pipe could have an abrasive effect on hard substrate or in sensitive sites in both the subtidal and intertidal zones.

The intertidal works will be tide dependent (working at low water when the intertidal zone is exposed), using traditional terrestrial-based plant excavators at low tide. As a result of conducting trenching activity in the intertidal area at low tide, it is expected that there will be temporary and localised disturbance.

Suspended sediment will mainly occur in the intertidal section of installation, which may be increased by incoming tide interacting with the cable trenching at the landfall sites. However, the impact of this suspended sediment is not expected to be significantly greater than suspended sediment resulting from wave action which causes low-level erosion of the shoreline sediments.

6.4.3 Changes in Suspended solids (Water Clarity)

There is the potential for the use of either a CFE or diver operated dredge pump to bury limited sections of the cable where sand ripples are present. Both methods are considered jetting techniques, which involve using a directed flow of water to bury a cable through suspension (and subsequent fall) of sediment. The use of either method will lead to suspended sediment, however any disturbance from jetting will last anywhere from a few hours to a few days (Taormina *et al.*, 2018). There is not known to be any contaminants in the sediment along the Application Corridor that could cause an adverse impact on the water quality in the area. This, when considered alongside the limited spatial and temporal impacts of any suspension, mean there will not be any significant changes in suspended solids as a result of the Project.

6.5 Mitigation

Mitigation measures that are embedded in the project design are listed in Table 4-1. Following assessment, there are no additional mitigation measures proposed.

6.6 Conclusion

The above assessment has concluded that the installation and operation of the Coll-Tiree cable will not adversely affect the seabed and water quality within or in the vicinity of the Application Corridor. Any sediment dispersed as a result of the cable installation activities will settle rapidly, likely becoming imperceptible in the water column to levels associated with strong tidal and wave action. Also, given that the cable will be predominantly surface laid with the exception of the intertidal area and a few sections (in areas with sand waves, which will utilise jetting tools), disturbance from direct habitat loss is expected to be highly localised in extent, limited to the footprint of the cable, spud legs (if utilised), any rock bags, split pipe or concrete mattresses (if required), no significant impacts to seabed and water quality features will occur.

7. MARINE MEGAFAUNA

7.1 Introduction

This Section characterises the marine megafauna (cetaceans, pinnipeds, otters and basking shark) in the vicinity of the Application Corridor, outlines the potential pressures associated with the proposed cable installation activities on marine megafauna and presents findings of the environmental assessment. Given their mobile nature, marine megafauna recorded within a 50km radius of the Application Corridor are considered in this Section.

7.1.1 Data Sources

The baseline has been informed using the following primary sources:

- European Protected Species (EPS) and Protected Sites and Species Risk Assessment - Argyll (Appendix C)
- Coll to Tiree Submarine Power Cable Desktop Environmental Report (WSP, 2023)
- Coll to Tiree Cable Route Desktop Study (OceanIQ, 2023)

In order to establish baseline conditions a desktop review of published information has been undertaken supported by consultation with relevant bodies. Consultation completed as part of the planning for these operations are summarised in Section 1.5. Any other data sources used are referenced throughout the document.

7.2 Marine Megafauna Description

7.2.1 Cetaceans

Under Annex II of the Habitats Directive and subsequently Schedule 2 of the Habitats Regulation (Conservation (Natural Habitats, &c.) Regulations 1994), harbour porpoise (*Phocena phocena*) and bottlenose dolphin (*Tursiops truncatus*) are listed as species of community interest whose designation within a SAC facilitates their conservation (as discussed in Section 2 (Legislation and Policy)). Furthermore, all cetacean species found in the UK are listed under Annex IV of the Habitats Directive as EPS and are protected in Scottish territorial waters under Section 39 of the Conservation (Natural Habitats, &c.) Regulations 1994, with it being an offence to capture, kill or disturb any EPS.

Section 5 (Protected Sites) considers all protected species which are designated features of SACs. This section therefore considers all protected species that have the potential to be present within or around the Application Corridor, not just those which are designated features.

The SCANS-IV survey undertaken in 2022 identifies that the Application Corridor is located within SCANS Block CS-F. Five species of cetacean have been recorded in this Block: harbour porpoise (*Phocoena phocoena*), bottlenose dolphin (*Tursiops truncatus*), Risso's dolphin (*Grampus griseus*), common dolphin (*Delphinus delphis*), and minke whale (*Balaenoptera acutrostrata*) (Gilles *et al.,* 2023). These species, along with other species classed as infrequent visitors, are detailed in Table 7-1.

Table 7-1 Cetacean Species Recorded within the Application Corridor

Species	Description of Species and Occurrence	Density Estimates in Vicinity of Application Corridor (individuals/km²)[1]	Management Unit (MU) Population Estimate [2]
Commonly Observed Species			
Harbour porpoise (*Phocoena phocoena*)	Harbour porpoise are the most abundant cetacean species on the west coast of Scotland, constituting one of the highest densities of porpoise found in Europe. Harbour porpoise are resident year-round in Hebridean waters and tend to be observed in groups of one to three animals (Reid *et al.*, 2003). While the Application Corridor does not fall within any designated sites for harbour porpoise, the Inner Hebrides and Minches SAC is nearby and there may be connectivity between animals using the Application Corridor and this SAC.	0.2010	28,936
Bottlenose dolphin (*Tursiops truncatus*)	The west coast of Scotland is home to one of the four groups of bottlenose dolphin present around UK waters. Around 30 individuals are known to reside around the Inner Hebrides (UKMMAS, 2018). There are no protected sites within 50km of the Application Corridor for bottlenose dolphin.	0.0425	-
Risso's dolphin (*Grampus griseus*)	The waters around the Hebrides have been highlighted to support breeding populations of Risso's dolphin. These cetaceans have been observed in most months of the year in waters located on the West coast of Scotland (Marine Mammal Protected Areas Task Force, 2024). There are no protected sites within 50km of the Application Corridor for Risso's dolphin.	0.0027	12,262
Minke whale (*Balaenoptera acutrostrata*)	Minke whales are known to visit the waters around the Hebrides seasonally, from March to November, using areas near the Application Corridor as feeding grounds (MacLeod *et al.,* 2004). There is one protected site designated for minke whale (Sea of Hebrides NCMPA), which is located within the Application Corridor; therefore, there may be connectivity between animals using the Application Corridor and this SAC.	0.0137	20,118
Infrequent visitors			
Common dolphin (*Delphinus delphis*)	Common dolphins are known to inhabit the Hebrides, with their presence primarily concentrated in shelf waters, particularly during the summer months (Hebrides Whale and Dolphin Trust, 2024). There are no protected sites within 50km of the Application Corridor for common dolphin.	0.0544	102,656

Sources: [1] Gilles *et al.* (2023); [2] IAMMWG, (2022)

7.2.2 Pinnipeds

Two seal species inhabit UK waters: the harbour seal (*Phoca vitulina*) and the grey seal (*Halichoerus grypus*). Both species are protected under multiple pieces of legislation, including The Conservation (Natural Habitats &c.) Regulations 1994 which prohibits certain methods of catching and killing seals

and the Marine (Scotland) Act 2010 which strengthened this protection to include killing, injuring or taking a live seal. The Protection of Seals (Designation of Haul-Out Sites) (Scotland) Order 2014 also designated separate seal haul-out sites where harassing a seal is considered an offence. This species is listed as a PMF species, within the UK Post-2010 Biodiversity Framework, Bern Convention, Scottish Biodiversity List and is an Annex II and Annex IV species under the Habitats Regulations. There has been a decline in *Phoca vitulina* numbers and the species is under threat due to anthropogenic factors such as fishing, gear entrapment, disturbance and toxic chemicals (NatureScot, 2024a). Both species occur year-round throughout the Hebrides and have been recorded within and around both the Isles of Coll and Tiree (SCOS, 2021).

During the breeding and moulting season, seals are particularly vulnerable to disturbance as this may cause seals to flush into the sea before they have replenished the necessary oxygen, heat and energy needed to moult and breed (Bellman *et al.,* 2019). For harbour seals, the breeding season occurs in June to July, and moulting season in August to September (Merkel, B. *et al* 2015). For grey seals, breeding occurs mid-September to December and moulting from December to April (Sea Mammal Research Unit, 2018).

The latest population estimate for harbour seals in Scotland is around 37,300 individuals, with approximately 75% (28,000 individuals) of those occurring in Western Scotland (Morris *et al*., 2021). The Application Corridor does not overlap with any SACs designated for harbour seal, and there are no protected sites within 50km with harbour seal as the designated feature. However, the Application Corridor overlaps the Gunna seal haul-out site which is protects both harbour and grey seals and is identified as a grey seal breeding site (Figure 7-1 and 7-2; (Drawing Reference: P2663K-HAB-001 and P2663K-HAB-002)). Within the Application Corridor, the at-sea density for harbour seals is estimated to be between 5-100 individuals per 25km^2 (Figure 7-1 (Drawing Reference: P2663K-HAB-001)).

The latest population estimate for grey seals in Scotland is around 106,300 individuals (Morris *et al*., 2021), with 5,064 individuals counted on land in the West Scotland Seal Management Area in 2014 and 4,541 pups born in the Area in 2016 (Marine Scotland, 2020). The Application Corridor does not overlap with any SACs for grey seals; however, as outlined in Section 5 “Protected Sites”, there are two protected sites with grey seals as the primary designated feature within 50km of the Application Corridor. These are the Treshnish Isles SAC and Treshnish Isles SSSI, as well as the Gunna seal haul-out site, identified as a grey seal breeding site, which overlaps with the Application Corridor. As such, there is potential for their presence within the Application Corridor as grey seals have a large foraging range of upwards of 100km (NatureScot, 2024a). Within the Application Corridor, the at-sea density for grey seals is estimated to be between 10-100+ individuals per 25km^2 (Figure 7-2 (Drawing Reference: P2663K-HAB-002)).

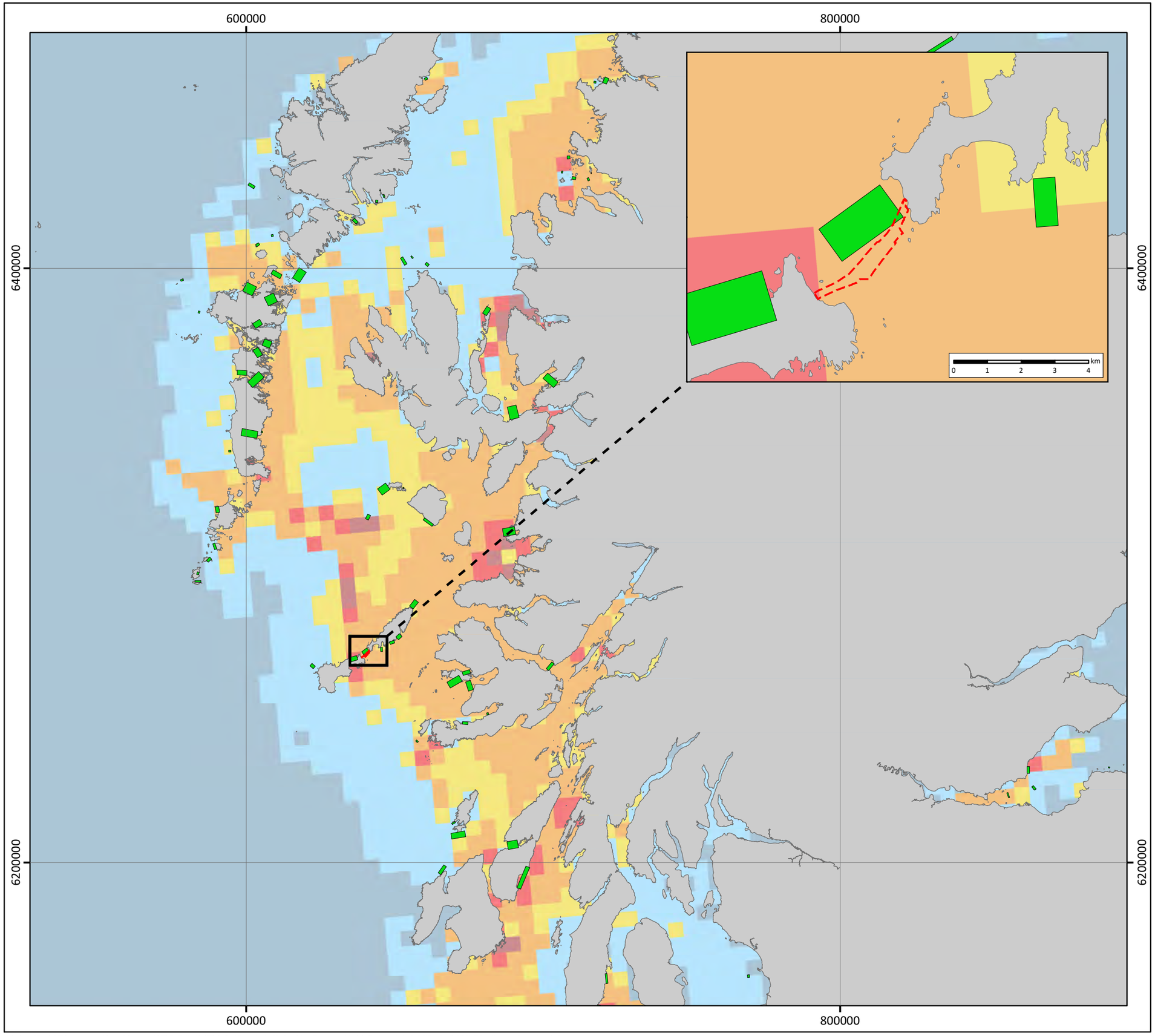
The OceanIQ (2023) Cable route desktop study, highlighted two grey seals were observed surfacing close to shore and exploring the rocky outcrops of the Tiree landfall site, Creag Sgreuchaidh.

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

PELAGIC HABITATS

Density of Common Seals Between 1991 and 2016

Drawing No: P2663K-HAB-001 | **B**



Legend

Application Corridor

Common Seal Density (5 km x 5 km)

- <=1
- 1 - 5
- 5 - 10
- 10 - 50
- 50 - 100
- >=100

Environmental Designations

- Protected Seal Haul-out Site

N
W E
S

NOTE: Not to be used for Navigation

Date	04 February 2025
Coordinate System	WGS 1984 UTM Zone 29N
Projection	Transverse Mercator
Datum	WGS 1984
Data Source	OS; GEBCO; SMRU; ESRI
File Reference	J:\P2663\P2663K\Mxd_QGZ\04_HAB\ P2663K-HAB-001.mxd
Created By	Lewis Castle
Reviewed By	Emma Langley
Approved By	Aodhfin Coyle

Scottish & Southern Electricity Networks

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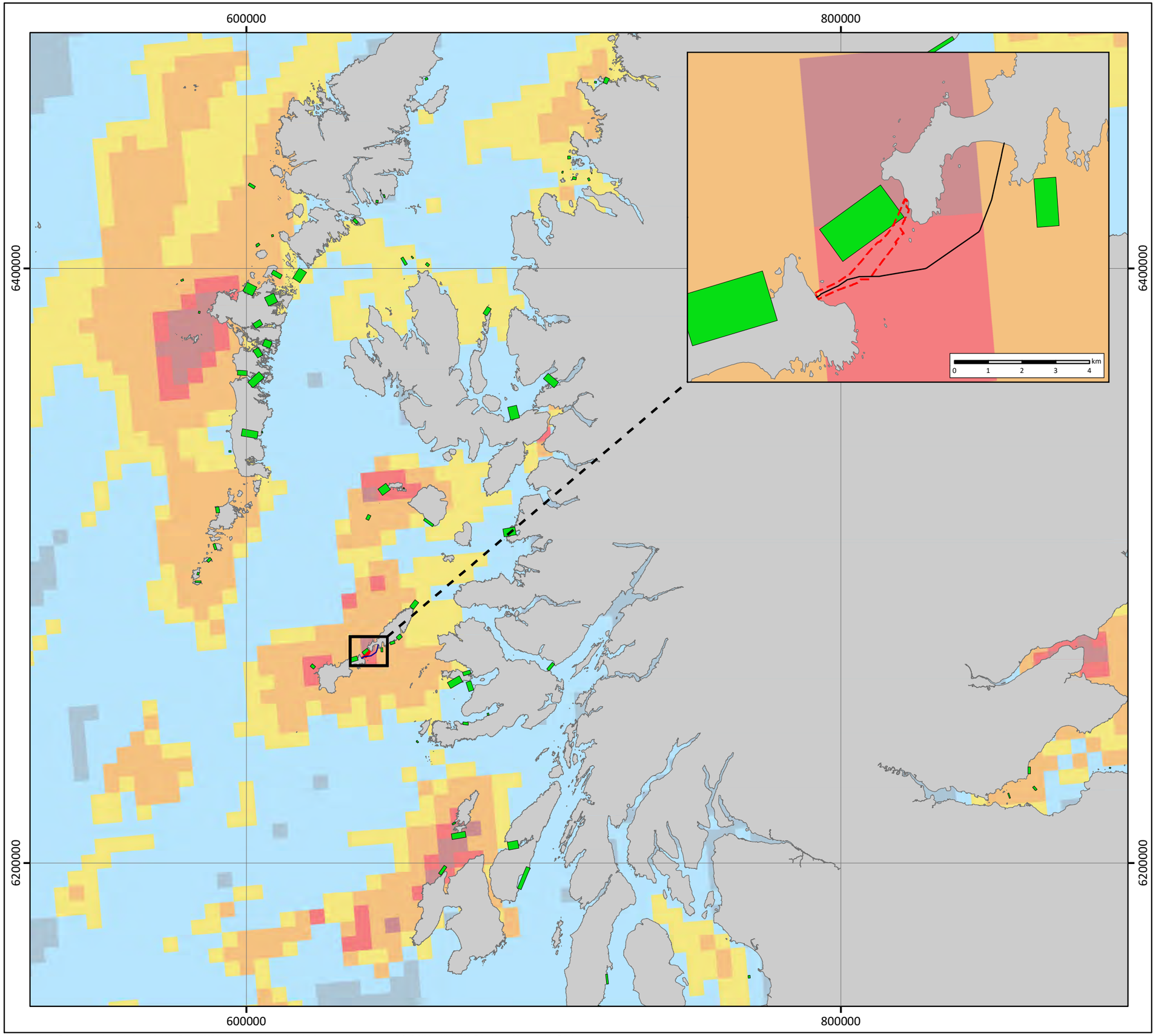

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

PELAGIC HABITATS

Density of Grey Seals Between 1991 and 2016

Drawing No: P2663K-HAB-002 | **B**

N
W E
S

Legend

RPL

Application Corridor

Grey Seal Density (5 km x 5 km)

- <=1
- 1 - 5
- 5 - 10
- 10 - 50
- 50 - 100
- >=100

Environmental Designations

Protected Seal Haul-out Site

NOTE: Not to be used for Navigation

Date	04 February 2025
Coordinate System	WGS 1984 UTM Zone 29N
Projection	Transverse Mercator
Datum	WGS 1984
Data Source	OS; GEBCO; SMRU; ESRI
File Reference	J:\P2663\P2663K\Mxd_QGZ\04_HAB\ P2663K-HAB-002.mxd
Created By	Lewis Castle
Reviewed By	Emma Langley
Approved By	Aodhfin Coyle

Scottish & Southern Electricity Networks

intertek metoc

0 20 40 60 80 km

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7.2.3 Otters

Otter are semi-aquatic mammals which may inhabit rivers, lakes, coastal areas, and marshy areas some distance from open water. Coastal populations utilise shallow, inshore marine areas for feeding but depend on fresh water for bathing and terrestrial areas for resting and breeding holts. They are commonly seen foraging within a narrow zone close to the shore (<100m) and only rarely cover larger distances, moving between islands (BEIS, 2022). Otter prefer low peat-covered coastlines with a strong freshwater supply and shallow, seaweed rich waters offshore. Otter are listed as a PMF species, on the UK Post-2010 Biodiversity Framework (formally UK BAP) and on the Bern Convention. It is also included in the Scottish Biodiversity List. This species is protected due to its large decline and is becoming increasingly threatened by fishing (NatureScot, 2024b). Otter are an Annex IV species under the Habitats Directive (European Commission, 2021). It is also an Annex II species.

No otter observations were made during the OceanIQ (2023) Cable route desktop study, however during consultation with local farmers it was raised that otter are frequently observed near the Tiree landfall location. Consultations completed as part of this application are summarised in Section 1.5. Onshore camera trap monitoring is planned at both the Coll and Tiree landfalls to monitor for the presence of otter.

As outlined in Section 5 Protected Sites, there are four sites with otter as a designated feature located within 50km of the Application Corridor, however due to the limited foraging ranges of otter it is unlikely for any individuals protected within these sites to be present within the Application Corridor.

7.2.4 Basking Shark

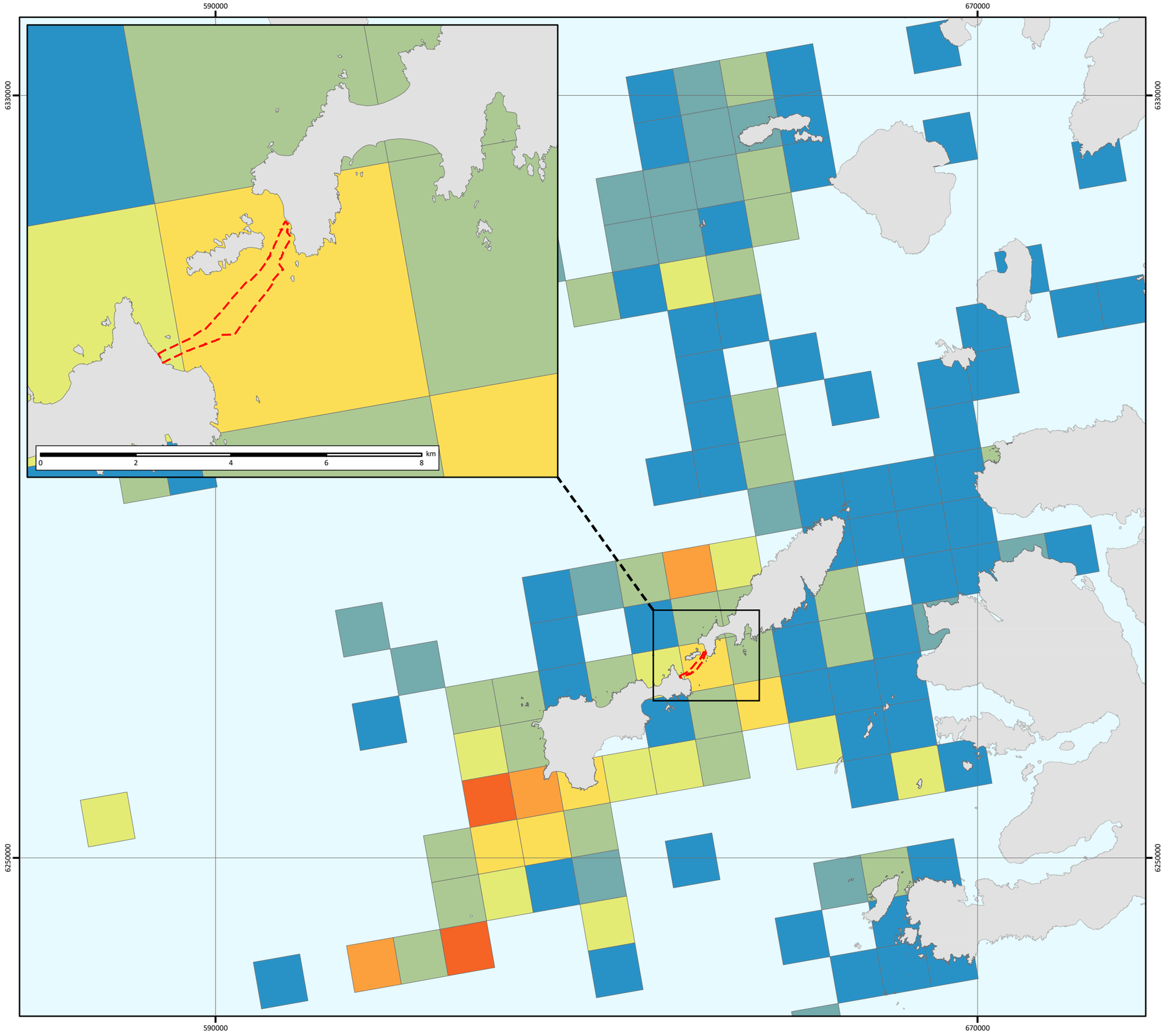
Basking shark are the second largest fish in the world and one of the few species of filter feeding shark (Sims, 2008). They are a wide-ranging species occurring from warm temperate waters of the European continental shelf as far north as the arctic (Sims, 2008). Basking sharks are migratory and have the potential to be present in Hebridean waters mainly between June and October (NatureScot, 2020).

The Application Corridor overlaps with the Sea of the Hebrides NCMPA designated for basking shark. Therefore, there is potential for their presence within the Application Corridor. Basking shark density is moderate within the Application Corridor, with 1-2 animals/km^2 (Figure 7-3 drawing reference: P2663K-FISH-001).

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

FISH AND FISHING ACTIVITIES
Observed Adjusted Densities of Basking Shark (2000-2012)

Drawing No: P2663K-FISH-001 | **B**



Legend

Application Corridor

Observed Adjusted Densities

Encounter Rate

- 0.00 - 0.10
- 0.10 - 0.20
- 0.20 - 0.50
- 0.50 - 1.00
- 1.00 - 2.00
- 2.00 - 5.00
- 5.00 - 10.00
- > 10

N W E S

NOTE: Not to be used for Navigation

Date	20 January 2025
Coordinate System	WGS 1984 UTM Zone 29N
Projection	Transverse Mercator
Datum	WGS 1984
Data Source	OS; NS; SHEPD; ESRI
File Reference	J:\P2663\P2663K\Mxd_QGZ\03_FISH\ P2663K-FISH-001.mxd
Created By	Lewis Castle
Reviewed By	Lewis Castle
Approved By	Aodhfin Coyle

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intertek metoc

0 5 10 15 20 km

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7.3 Impact Assessment

7.3.1 Underwater Noise Changes

As described in Section 5 "Protected sites", the main sources of underwater noise generated during the cable installation will be from the installation vessels and the cable laying activities. Underwater noise changes resulting from the installation activities primarily result from the noise associated with vessels and Ultra-short baseline (USBL). The assessment below focusses on the cetacean and pinniped species in the vicinity of the Application Corridor, and the effects that USBL devices may have on these species.

If frequencies of the sound produced fall outside the predicted auditory bandwidth for a species, then disturbance is unlikely. Sufficiently loud noise sources, however, can still cause damage to an individuals' auditory or other internal organs. For details on the typical auditory bandwidths of cetaceans, see Table 7-2.

Table 7-2 Auditory Bandwidths Estimated for Hearing Groups

Hearing Group	Estimated Auditory Bandwidth
Low-frequency cetaceans (deep diving species e.g. minke whale, pilot whale, etc.)	7Hz to 35kHz, with peak sensitivity around 100- 200Hz
Mid-frequency cetaceans (small dolphins e.g. bottlenose dolphin, common dolphin, white-beaked dolphin, etc.)	150Hz to 160kHz, with peak sensitivity above 10 kHz (Except for killer whales: 50Hz to 100kHz)
High-frequency cetaceans (harbour porpoise)	180Hz to 200kHz, with peak sensitivity above 4kHz
Phocid pinnipeds (true seals, e.g. grey and harbour seal)	50Hz to 86kHz
Basking shark	20Hz to 1kHz

Source: NMFS, 2018; Southall *et al.*, 2019

7.3.1.1 Cetaceans

Cetaceans present within the Application Corridor may experience impacts from the installation activities such as injury to auditory and internal organs and disturbance to behavioural patterns. USBL in a worst-case scenario would disturb less than 0.1 individuals of any cetacean species per 0.13km² (Xodus, 2023). As such, potential disturbance impacts from USBL on harbour porpoise, Risso's dolphin, bottlenose dolphin, common dolphin and minke whale would be negligible. Given the moderate vessel density within the Application Corridor (see Section 13 – Shipping and Navigation), the addition of vessels associated with installation activities will not substantially increase vessel numbers or the existing baseline soundscape in the vicinity of the Application Corridor. Given that the presence of the installation vessels will not result in a significant change to the number of vessels in the area and that cable installation activities will be a temporary occurrence, no adverse effects to cetaceans from the installation activities are expected. There will therefore be no significant disturbance to cetacean species as a result of installation activities.

7.3.1.2 Pinnipeds

While less sensitive to underwater noise emissions than cetaceans, noise from vessels has been shown to elicit behavioural responses in seals (Mikkelsen *et al*., 2019). For details on the typical auditory bandwidths of pinnipeds, see Table 7-2. Underwater noise emissions from vessels associated with the Project will be localised, temporary and transient, such that any disturbance to seals will be short-term. Seals in the water could also be susceptible to disturbance from USBL devices, given the overlap in their hearing ranges and sound generated by USBL devices (NMFS, 2018). Studies have shown however, 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). Although at-sea seal density is high within the Application Corridor, given the transient nature of the installation activities, no significant disturbance of seals is expected to occur as a result of installation activities. A thorough assessment of potential impacts to seals within the Application Corridor is provided within the European Protected Species (EPS) and Protected Sites and Species Risk Assessment (Appendix C), along with details of the measures employed during the Project to mitigate any impacts to seal species were necessary.

7.3.1.3 Otters

Otter are known to possess the ability to detect underwater sounds however, their hearing is primarily air adapted (Ghoul & Reichmuth, 2016). In water their auditory bandwidth is identified as 125Hz to 40kHz (Ghoul & Reichmuth, 2016) however, they are not considered sensitive to noise (Xodus, 2023). Given their specialisation for aerial hearing, the impact of underwater noise changes resulting from the installation vessels and cable installation operations is not considered to pose a significant risk to the species. Furthermore, operations will be short-term and as such any disturbance to otter will be temporary.

7.3.1.4 Basking shark

Basking shark in general are considered to have a low sensitivity to noise given that they do not possess a swim bladder. The hearing capabilities of basking shark is unknown; however, five species of elasmobranch are known to hear in the range of 20Hz to 1KHz (Macleod *et al*., 2011). The low frequency noise emissions produced by vessels overlaps with this range, therefore, could be a potential risk to basking sharks should they have similar hearing sensitivity. However, the addition of vessels associated with installation activities will not substantially increase vessel numbers or the existing baseline soundscape in the vicinity of the Application Corridor. In addition, although the density of basking shark in the Application Corridor is high moderate, given the transient nature of the installation activities, no significant disturbance to basking shark is expected to occur as a result of installation activities.

7.3.2 Vessel Presence

The Application Corridor overlaps the Barra to Tiree ferry route and the Coll to Tiree ferry transits in close proximity to the south of the Application Corridor. Vessel density within the Application Corridor is moderate (Section 13 – Shipping and Navigation). Therefore, the addition of vessels associated with the cable installation is not expected to substantially increase overall vessel numbers in the area.

The effects of vessel presence on marine mammals has been assessed in Section 5 “Protected Sites” if species fall within a protected site or are likely to enter the Application Corridor due to proximity of their protected site. The assessment concluding that no significant effects to these species would occur, due to their mobile nature and the short-term, temporary and localised nature of the installation activities. Furthermore, all vessels utilised during this operation will adhere to the SMWWC such that any risks resulting from vessel presence are minimised where possible.

7.3.2.1 Cetaceans

Although cetaceans may transit the Application Corridor their mobile nature and the slow movement of installation vessels means that individuals will have sufficient time to move out of the path of any vessel. Thus, minimising risks of collision and reducing significant risks of injury or death to unlikely. As such no significant disturbance to cetaceans is expected.

7.3.2.2 Pinnipeds

Pinnipeds have increased susceptibility to disturbance whilst ashore, particularly during the breeding and moulting periods (Xodus, 2023). The presence of vessels close to shore or shore-based work in the intertidal zone may result in disturbance and cause seals to flush to sea if these activities occur in close proximity to a haul-out site. The boundary of the Gunna Designated Seal Haul Out Site overlaps with the Application Corridor and protects both harbour and grey seals, however greys seals are the

predominant species to utilise this haul out site and the site is identified as a grey seal breeding site. As noted within the EPS Protected sites and Species Risk Assessment (Appendix C), with cable installation scheduled for summer and the installation of cable protection measures with potential to extend into September, the proposed activities may coincide with the sensitive periods for grey seals whose pupping season occurs from August to January. A mitigation zone of 500m to avoid the disturbance of hauled out seals is advised (SCOS, 2021). Given that the Gunna seal haul out site is located within the Application Corridor, there is potential for hauled out seals to be disturbed by the vessels utilised during this operation which may impact the breeding success of the species for that season. Furthermore, given that seals typically forage within 5-10km of their haul out sites their presence within the Application Corridor is possible. However, the installation activities will be short-term, localised and temporary and thus disturbance to hauled out seals will be minimal and significant impacts to the breeding success of grey seals is not expected. There is also evidence of habituation behaviours in seals, with seals observed to be less likely to flush into the water from haul out sites in areas with a high density of passing vessels (Olsen *et al.,* 2017). Given the moderate shipping density in the vicinity of the Application Corridor from vessels transiting to and from Tiree, there is expected to be a level of habituation to vessel traffic and therefore disturbance to hauled out seals is not expected to be significant. Furthermore, the slow speed of the installation vessels (less than 4 knots) provides individuals with sufficient time to move out of the path of any vessel thus reducing the risk of vessel strike. As such no significant disturbance to pinnipeds is expected.

7.3.2.3 Otters

The presence of the installation vessels utilised during this operation may pose a disturbance risk to otter. Otter are sensitive to visual and above water noise disturbances which may disrupt their foraging behaviour and exclude them from vital areas (The Scottish Government, 2019). However, given that no evidence of otter was noted within the OceanIQ (2023) Cable route desktop study and the short-term, localised and temporary nature of the installation activities any disturbance to otter will be temporary and not significant.

7.3.2.4 Basking shark

Basking shark are slow to mature and have long gestational periods (Hebridean Whale and Dolphin Trust (HWDT), 2018). As a large, slow moving species, basking sharks are at risk of collision with vessels, particularly those at higher speeds. However, given the slow speed of the installation vessels (less than 4 knots) no significant risks of injury to basking shark from vessel presence are expected and as such no significant disturbance to basking shark is expected.

7.4 Mitigation

Mitigation measures that are embedded in the project design are listed in Table 4-1. Following assessment, there are no additional mitigation measures proposed.

7.5 Conclusion

The above assessment has determined that the short-term, localised and transient nature of installation activities in combination with mitigation measures embedded as part of project design will result in unlikely adverse effects to cetacean, pinniped and basking shark present within the application corridor at moderate to high densities (harbour seal usage is estimated between 5-100 individuals per 25km^2, grey seal usage is estimated between 10-100+ individuals per 25km^2, and basking shark encounter rates of up to 2 animals per km^2). Any impacts to otter are also not expected to result from the proposed operations.

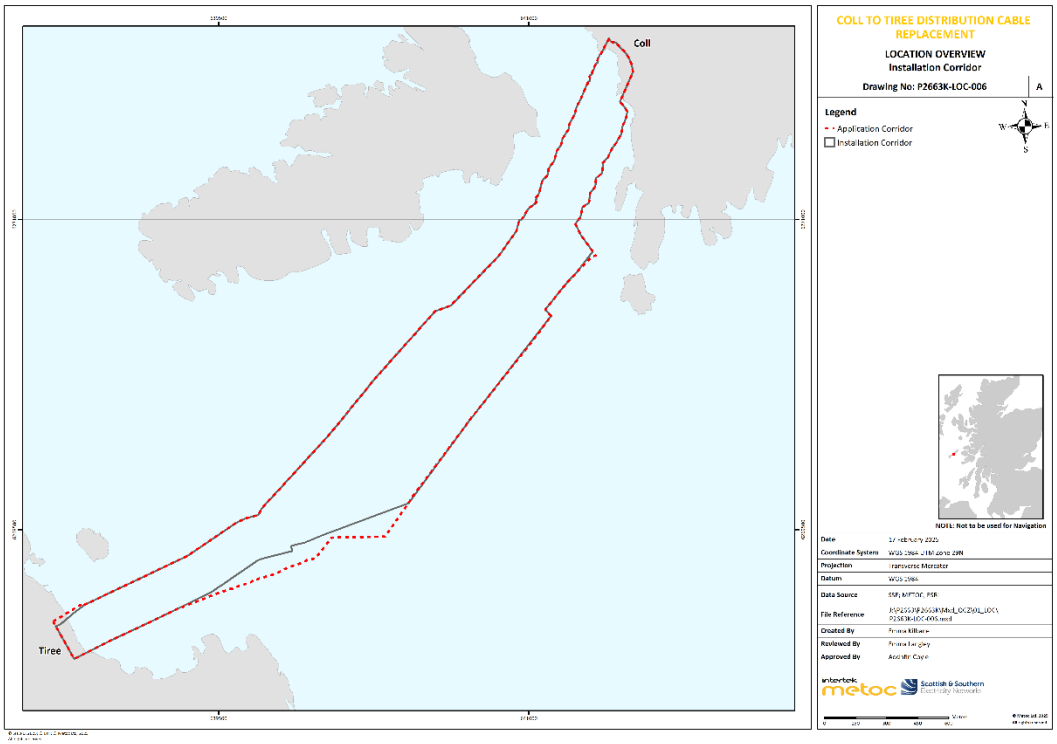
8. BENTHIC AND INTERTIDAL ECOLOGY

8.1 Introduction

This Section characterises the intertidal and subtidal benthic ecology within the development area, outlines the impacts associated with the cable installation activities on intertidal and subtidal benthic communities and presents the findings of the environmental assessment.

The cable installation activities will be confined to the Installation Corridor shown in Figure 8-1 (Drawing Number: P2663K-LOC-006) and the environmental assessment will evaluate the potential impacts within this area.

Figure 8-1 Coll – Tiree Installation Corridor [Drawing Number: P2663K-LOC-006]



8.2 Data Sources

Baseline conditions have been established by undertaking a desktop review of published data and through interpretation of data provided in a site specific subtidal and intertidal habitat assessment report produced by Benthic Solutions Ltd (BSL) for the marine surveys undertaken between August and September 2023. A habitat assessment report undertaken by Intertek Metoc for the marine surveys undertaken in the updated Application Corridor in October 2024 and November 2025 has also been used along with the Marine Scotland Feature Activity Sensitivity Tool (FeAST) tool and the Marine Life Information Network (MarLIN) sensitivity.

The baseline description and assessment has been informed using the following primary sources:

- Coll Tiree Habitat Assessment Survey Report V2.0 (Benthic Solutions Ltd, 2024)
- Coll Tiree Habitat Assessment Survey Report (Intertek Metoc, 2025)
- Coll Tiree Intertidal Survey Technical Report (Ocean Ecology, 2025)

- Marine Scotland FeAST tool (FeAST, 2023)
- MarLIN – The Marine Life Information Network (MarLIN, 2025)

8.3 Benthic and Intertidal Ecology Description

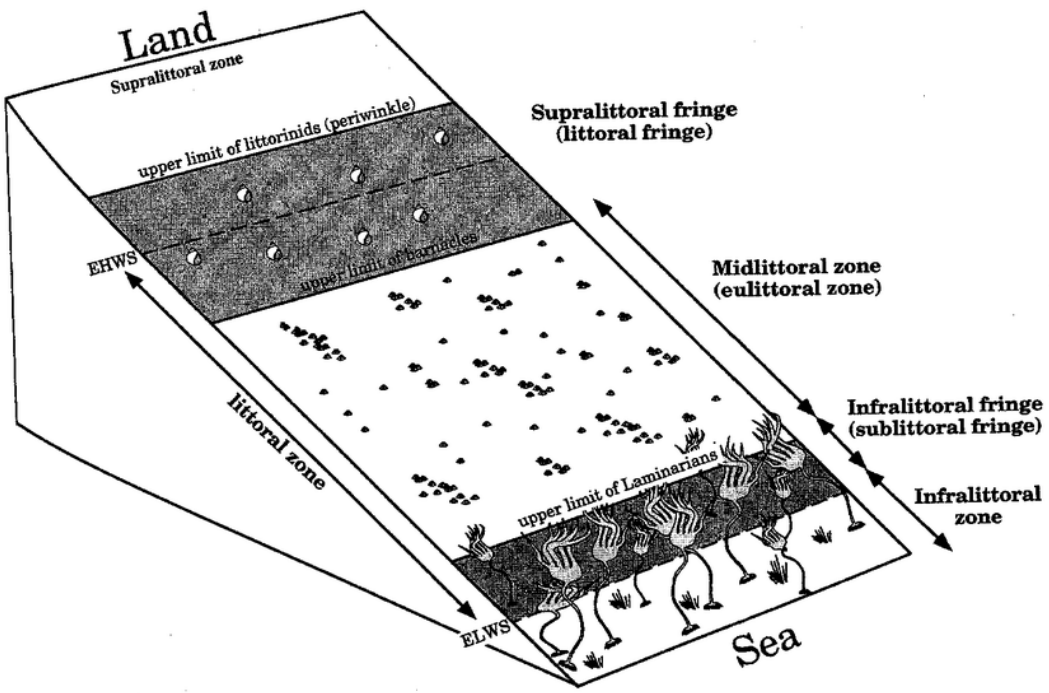
8.3.1 Intertidal Ecology

The intertidal area is split into four main zones, as shown in Figure 8-2:

- Supralittoral zone
- Upper eulittoral zone
- Mid-eulittoral zone
- Lower eulittoral zone

The infralittoral zone is a subzone of the sublittoral zone.

Figure 8-2 A Schematic of the Intertidal Zone (Hill *et al*., 1998)



8.3.1.2 Coll landfall site

The Coll intertidal landfall was characterised by a narrow band of bedrock in the northwest and barren coarse sediment across the centre and southeast of the intertidal area (Figure 8-3). The mid shore consisted of barren coarse sediment with patches of rock and associated algal communities. This was also observed in the lower shore with further rock habitats. Algal communities did not show a consistent trend down to the shore due the patchy distribution of rock features across the intertidal area.

The upper eulittoral zone was characterised by barren coarse sand (European Nature Information System (EUNIS) habitat classification A2.221) and supralittoral rock (B3.1). In the mid-eulittoral zone, the barren coarse sand (A2.221) extended into a band and rock was present, supporting fucoid communities (A1.31). *Fucus spiralis* and *Pelvetia canaliculata* were observed on some of the upper

and upper mid shore rocky habitat. Barren coarse sand (A2.221) was also observed in the centre and southeast extent near the strandline (A2.21).

The mid-eulittoral was dominated by barren sediment (A2.2221) with patches of rock (A1.3) with fucoids (A1.31) and barnacles (A1.11). A patch of ephemeral green or red seaweeds on mobile substrata was also observed (A2.82). Fucoids (*Fucus serratus*, *Fucus vesiculosus*, and *F. spiralis*), red and green algae, and *Ascophyllum nodosum* dominated the mid to low shore.

The lower shore was dominated by a variety of rock habitats due to varying elevation and submersion. This resulted in a combination of typically low, mid and upper eulittoral biotopes including barnacles and fucoids (A1.21), mussels with barnacles (A1.11), fucoid communities (A1.31) and rockpools (A1.41). Patches of rock with lichens or small green algae were also observed (B3.11). Faunal taxon observed were limpet species including *Patella vulgata*, anemone species such as *Actinia equina*, barnacles including *Semibalanus* species, and *Mytilus* spp. including *Mytilus edulis*.

No evidence of anthropogenic activity was observed at the Coll landfall.

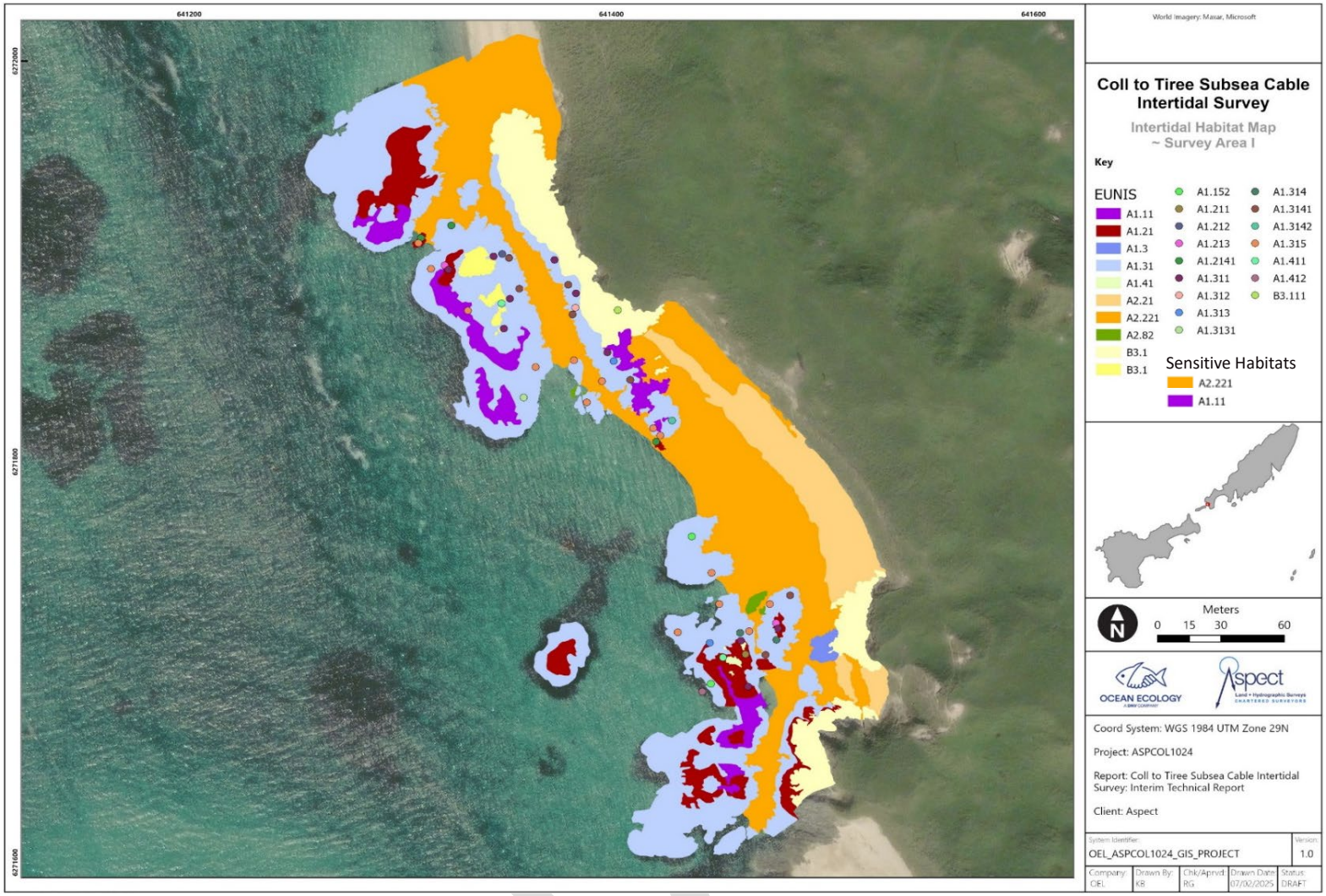
Figure 8-3 below displays the Broadscale Habitats (BSHs) and biotopes observed across the Coll intertidal survey area.

Potentially sensitive habitats

Several potentially sensitive habitats or species were identified within the Tiree landfall (Figure 8-3). These habitats and species are detailed below:

- **'Barren Littoral Coarse Sand' (A2.221) –** This habitat is a component of 'Littoral Sand and Muddy Sand' (A2.2) of which qualifies as an Annex I habitat under 'Mudflats and sandflats not covered by seawater at low tide' (EUR 28, 2013).
- **'Mussel and/or Barnacle Communities' (A1.11) –** This habitat is listed on the Bern Convention as an endangered natural habitat (Council of Europe, 2010).
- **'*Fucus serratus*, Sponges and Ascidians on Tide-swept Lower Eulittoral Rock' (A1.152)** – This habitat is a component of the PMF habitat 'Tide-swept algal communities' and a Habitat of Principal Importance (HPI) according to the Scottish Biodiversity List (SBL). This habitat, however, was only observed at two target locations and one quadrat and the coverage was not extensive enough to be classified as a habitat in habitat mapping. Due to the limited extent of this habitat, it has been scoped out of the assessment.
- **'Littoral Mixed Sediments' (A2.4)** – This habitat is a HPI and is listed on the Bern convention, however observations were limited to two target locations and coverage was not extensive enough to be classified as a habitat in habitat mapping. Due to the limited extent of this habitat, it has been scoped out of the assessment.
- **'Fucoids on Sheltered Marine Shores' (A1.31) –** Littoral rock habitats can be assigned as Annex I reef if the rock extends into the sublittoral zone and is uninterrupted (EUR 28, 2013). As there are occasions where 'Fucoids on Sheltered Marine Shores' (A1.31) extends into the subtidal habitat '*Laminaria hyperborea* and Foliose Red Seaweeds on Exposed Infralittoral Rock' (MB121A), these areas have been assigned Annex I reef.

Figure 8-3 Map of Intertidal Habitats Recorded at the Coll Landfall Site



8.3.1.3 Tiree landfall site

The Tiree landfall site was characterised by rocky outcrops and pebbles, cobbles and boulders (Figure 8-4). Bedrock outcrops supported a variety of fucoid species along with molluscs, gastropods and barnacles in the mid-eulittoral zone and the lower eulittoral zone was comprised of cobbles, pebbles and boulders with similar fauna. These areas of hard substrate were intermixed with a coarse-medium sand matrix, with sporadic worm casts observed.

Two coastal habitats were recorded including dunes and sandy shores (EUNIS habitat classification N1) consisting of small dunes. A sandy beach was present below the dunes (N11) with sandfly / sandhopper burrows. Patches of yellow lichen (Teloshistaceae) and grey lichen (Mycoblastaceae) on outcropping bedrock (MA1211) were also observed here. Sandflies and burrows of unknown origin were present in the strandline (MA521). Below the strandline, patches of rock were observed (MA12), with some yellow and grey lichen (MA1211) and a band of tar lichen (*Hydropunctaria (prev. Verrucaria) maura*) observed towards the centre of the landfall (MA12132).

On areas of exposed bedrock in the upper eulittoral zone, the channelled wrack, *P. canaliculata*, was recorded (MA123B). In the same areas of exposed bedrock, the spiral wrack, *F. spiralis*, was recorded in a narrow band and often intermixed with *P. canaliculata* (MA123C).

From the upper eulittoral to the lower eulittoral, the sediment did not appear to harbour any conspicuous epifauna, except the occasional polychaete cast. Limited fauna were recorded in all samples. Of the limited fauna recorded, infaunal species typically of the class Polychaeta or Malacostraca (Amphipoda), were primarily found in this sediment (MA523).

Areas of exposed bedrock in the mid-eulittoral zone were dominated by the bladderwrack, *F. vesiculosus*, accompanied by typical fauna such as the flat periwinkle, *Littorina obtusata*, and sparse barnacles (*Semibalanus balanoides*) (MA123D1). The knotted wrack, *Ascophyllum nodosum*, was observed dominating a small area of mid-eulittoral exposed bedrock in the northern most area of the landfall. *A. nodosum* supported much of the same fauna such as periwinkles (*Littorina* spp.), limpets (*P. vulgata*) and *S. balanoides*, as well as coralline encrusting algae (MA123E1).

In the southern extent of the landfall, a large portion of bedrock was covered by barnacles, limpets and periwinkles (MA12231). Beneath this habitat, a mixture of barnacles, limpets and *F. vesiculosus* was observed on bedrock (MA12232). The final habitat observed in the mid-eulittoral at Tiree solely consisted of ephemeral green algae (*Ulva* sp.) along the bedrock fringe (MA123H). Towards the lower eulittoral zone, cobbles and pebbles with large boulders and algae such as *Ulva* sp., *Rhodothamniella* sp. and some fucoid species were observed (MA421).

In the lower eulittoral zone, dense canopies of the toothed wrack, *F. serratus*, on large boulders was observed (MA123F1). The canopies provide shelter for similar faunal communities to those found beneath other fucoid canopies, such as *L. obtusata*, *S. balanoides*, *Ulva* sp., and *Cladophora* sp.. The second lower eulittoral habitat observed at the landfall was dominated by the thongweed, *Himanthalia elongata*, attached to large boulders (MA1233). This habitat supported a variety of fauna including green sea fingers (*Codium fragile*), Japanese wireweed (*Sargassum muticum*), sand binder (*Rhodothamniella floridula*) and sponges (*Halichondria* sp.).

Four rockpool habitats were recorded at three separate locations across the landfall. Some of those rockpools supported multiple species of algae, such as *Ulva* sp. and fucoid species (MA126). Others occurred in areas of *F. vesiculosus* and were largely dominated by green algae (Chlorophyta) of the species *Ulva* and *Cladophora* (MA1261). These two rockpool habitats were exclusively found on the bedrock outcrops in the centre and north of the landfall, in the upper and mid-eulittoral zone. Rockpools in the south of the Tiree landfall supported coralline encrusting algae (*Lithophyllum* sp.) (MA1262). Some rockpools supported both *Lithophyllum* sp. and the coral weed (*Corallina officinalis*) (MA12621).

No evidence of anthropogenic activity was observed at the Tiree landfall.

Figure 8-4 below displays the BSHs and biotopes observed across the Tiree intertidal survey area.

Potentially sensitive habitats

Several potentially sensitive habitats or species were identified within the Tiree landfall (Figure 8-5). These habitats and species are detailed below:

- **'Yellow and Grey Lichens on Atlantic Supralittoral Rock' (MA1211)** - The supralittoral habitat is listed under the Habitats Directive as an Annex I (EUR 28, 2013). It is also a UK Post-2010 Biodiversity Framework (formally UK BAP) Priority Habitat and is included in the Scottish Biodiversity List under 'Maritime Cliffs and Slopes'.
- **'Coastal Dunes and Sandy Shores' (N1)** – This coastal habitat is listed under the Habitats Directive and includes a variety of Annex I habitats (EUR 28, 2013). It is also a UK Post-2010 Biodiversity Framework (formally UK BAP) Priority Habitat.
- **'Atlantic, Baltic and Arctic Sand Beach' (N11)** – This habitat is listed under the Habitats Directive as an Annex I habitat (EUR 28, 2013).
- **'*Semibalanus balanoides*, *Fucus vesiculosus* and Red Seaweeds on Exposed to Moderately Exposed Eulittoral Rock' (MA12232)** – This habitat is listed under the Habitats Directive as an Annex I habitat (EUR 28, 2013).
- **Dog whelks (*Nucella lapillus*)** – *N. lapillus* were observed at the landfall and is listed by OSPAR due to the decline in their population across OSPAR regions and the species high sensitivity to synthetic compound contamination such as tributyltin, as well as changes in nutrient levels and substratum loss (OSPAR, 2008).

Figure 8-4 Map of Intertidal Habitats Recorded at the Tiree Landfall Site

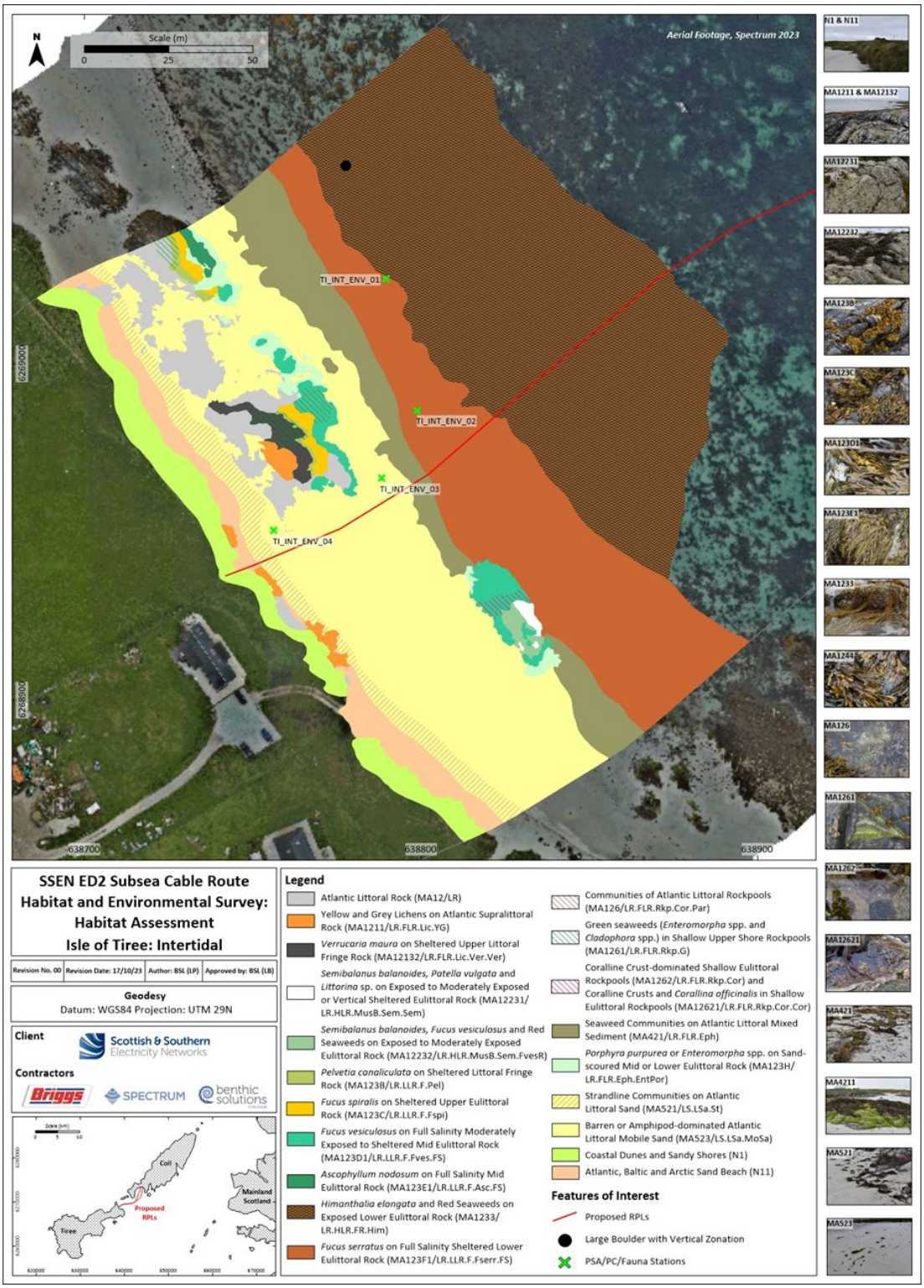
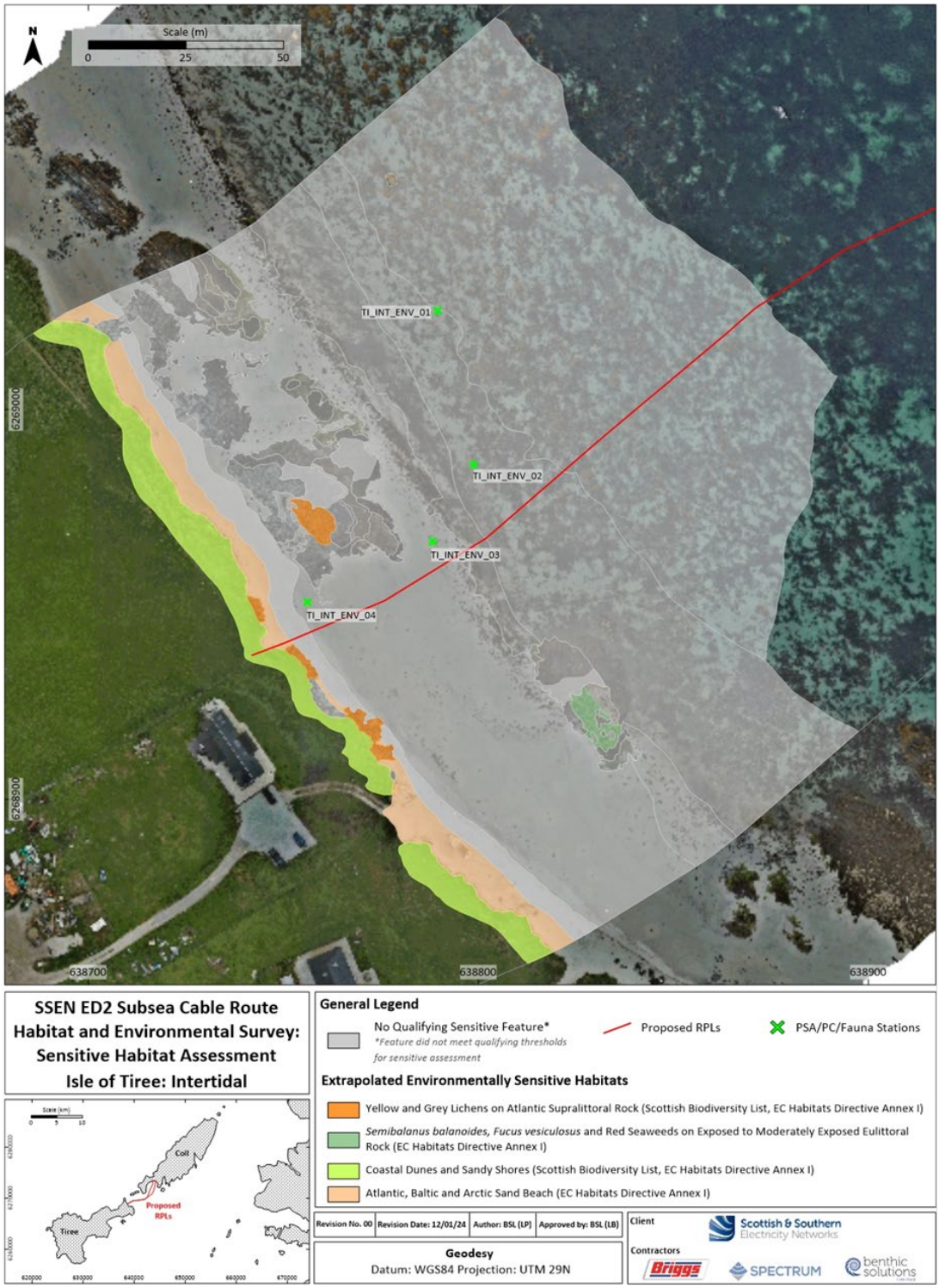


Figure 8-5 Map of Sensitive Intertidal Habitats Recorded at the Tiree Landfall Site

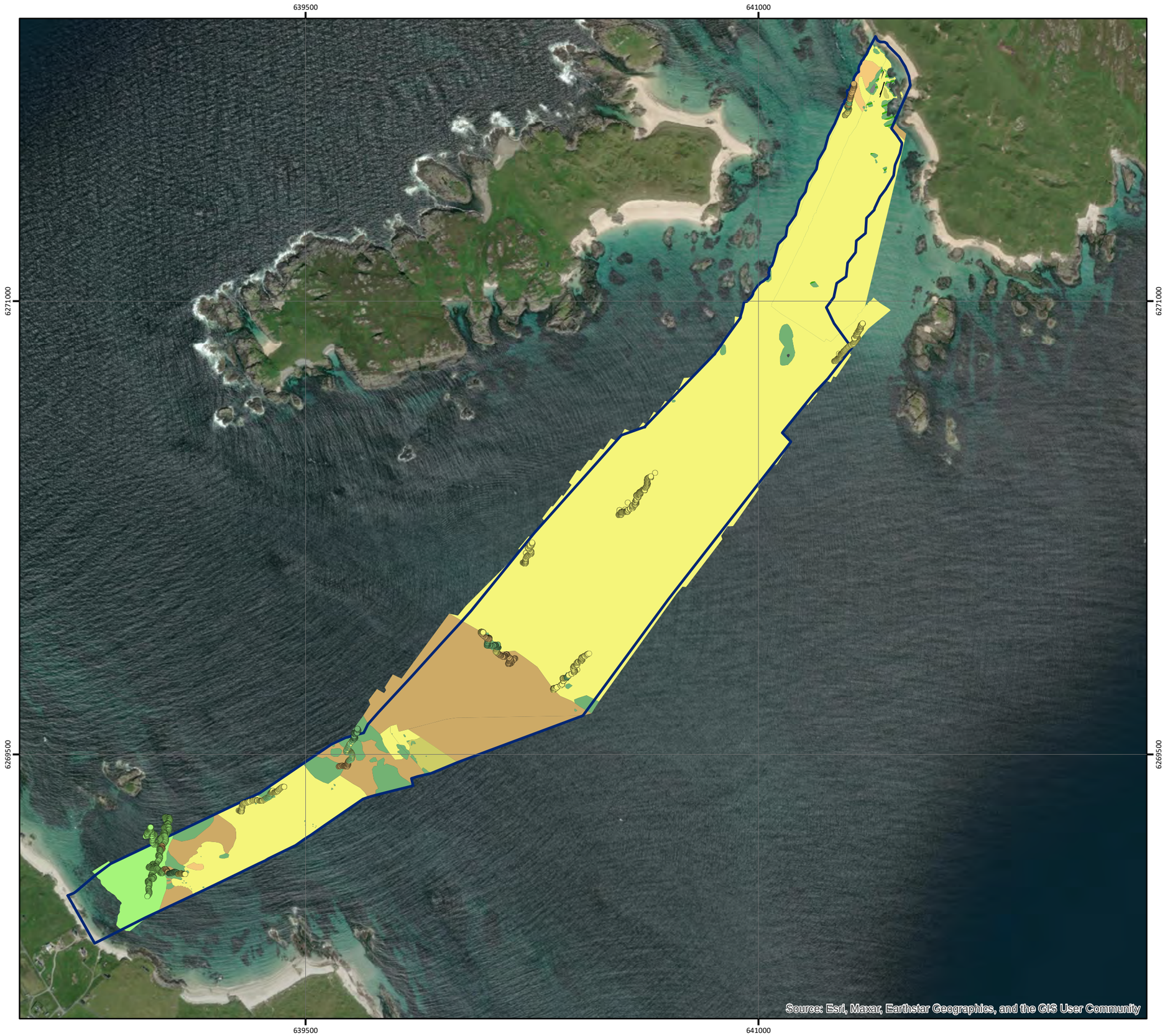


8.3.2 Subtidal Ecology

The Coll to Tiree Installation Corridor was comprised of areas of sediment, kelp and seaweed communities, seagrass beds and rock with *Laminaria hyperborea*.

Figure 8-6 (Drawing Number: P266K-HAB-009) below displays the locations of these habitats across the Installation Corridor with ground-truthing stations and Figure 8-7 (Drawing Number: P2663K-HAB-008) illustrates the final habitat interpretation.

The nearshore area of Coll was characterised by the habitat classification of MB523 'Faunal Communities of Full Salinity Atlantic Infralittoral Sand' (MB523) with several rocky outcrops consisting of '*Laminaria hyperborea* and Foliose Red Seaweeds on Moderately Exposed Atlantic Infralittoral Rock' (MB121A). This consisted of a canopy of kelp, mainly tangle (*L. hyperborea*) with an under-canopy of foliose red seaweeds (Rhodophyta), sea lettuce (*Ulva lactuca*) and encrusting coralline algae (Corallinales). Kelp fronds were colonised by epifauna such as the kelp encrusting bryozoan (*Membranipora membranacea*). Outcropping and subcropping rocky features supported mobile fauna such as sea stars (*Asterias rubens*) and anemones (*Urticina felina*). Patches of 'Kelp and Seaweed Communities on Atlantic Infralittoral Sand' (MB521) and a large patch of 'Infralittoral Coarse Sediment' (MB323) with 'Kelp and Seaweed Communities on Atlantic Infralittoral Coarse Sediment' (MB321) was observed. This consisted of kelp, including sugar kelp (*Saccharina latissima*). The central section of the Installation Corridor was dominated by sand (MB523) with occasional patches of rock with *L. hyperborea* (MB121A). This transitioned into coarse sediment kelp and seaweed communities (MB321) with patches of 'Kelp and Seaweed Communities on Atlantic Infralittoral Sand' (MB521) and rock with *L. hyperborea* (MB121A). Upon approach to the Tiree landfall, the seafloor was dominated by common eelgrass (*Zostera marina*) classified as '*Zostera marina/angustifolia* Beds on Atlantic Infralittoral Clean or Muddy Sand' (MB5223). The observed subtidal *Zostera* beds were dense throughout the area, with coverage ranging between 70 and 90%.



COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

HABITATS
Subtidal Habitats and Ground-Truthing Stations

Drawing No: P2663K-HAB-009 | **A**

Legend

Installation Corridor

Groundtruthing Habitats/Biotopes

- MB121A Laminaria hyperborea and Foliose Red Seaweeds on Exposed Infralittoral Rock
- MB121A Laminaria hyperborea and Foliose Red Seaweeds on Exposed Infralittoral Rock / MB523 Faunal communities of full salinity Atlantic infralittoral sand
- MB321 Kelp and Seaweed Communities on Atlantic Infralittoral Coarse Sediment
- MB323 Infralittoral Coarse Sediment
- MB5223 Zostera marina/angustifolia Beds on Atlantic Infralittoral Clean or Muddy Sand
- MB523 Faunal Communities of Full Salinity Atlantic Infralittoral Sand

Subtidal Habitats/Biotopes

- MB121A
- MB321
- MB521
- MB523
- MB5223
- Likely MB121A
- N/A - Existing cable
- N/A - Hard Substrate
- N/A - Land
- N/A - Linear debris

NOTE: Not to be used for Navigation

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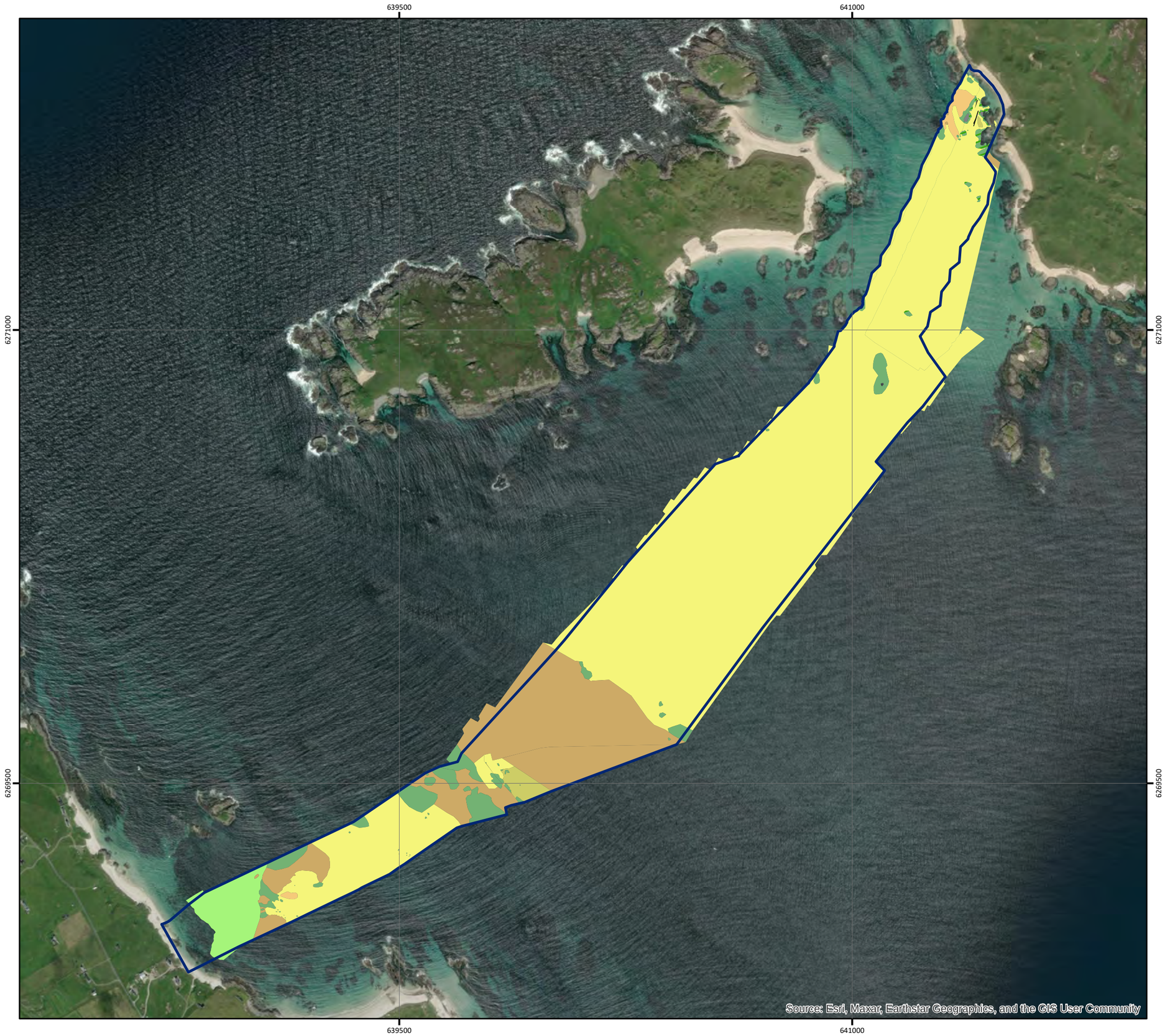

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

HABITATS
Subtidal Habitats

Drawing No: P2663K-HAB-008 | **A**

N
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Legend

- Installation Corridor

Subtidal Habitats

- MB121A Laminaria hyperborea and Foliose Red Seaweeds on Exposed Infralittoral Rock
- MB321 Kelp and Seaweed Communities on Atlantic Infralittoral Coarse Sediment
- MB521 Kelp and Seaweed Communities on Atlantic Infralittoral Sand
- MB523 Faunal Communities on Full Salinity Atlantic Infralittoral Sand
- MB5223 Zostera marina/angustifolia Beds on Atlantic Infralittoral Clean or Muddy Sand
- Likely MB121A Laminaria hyperborea and Foliose Red Seaweeds on Moderately Exposed Atlantic Infralittoral Rock
- N/A - Existing cable
- N/A - Hard Substrate
- N/A - Land
- N/A - Linear debris

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8.3.2.2 Potentially sensitive habitats and / or species

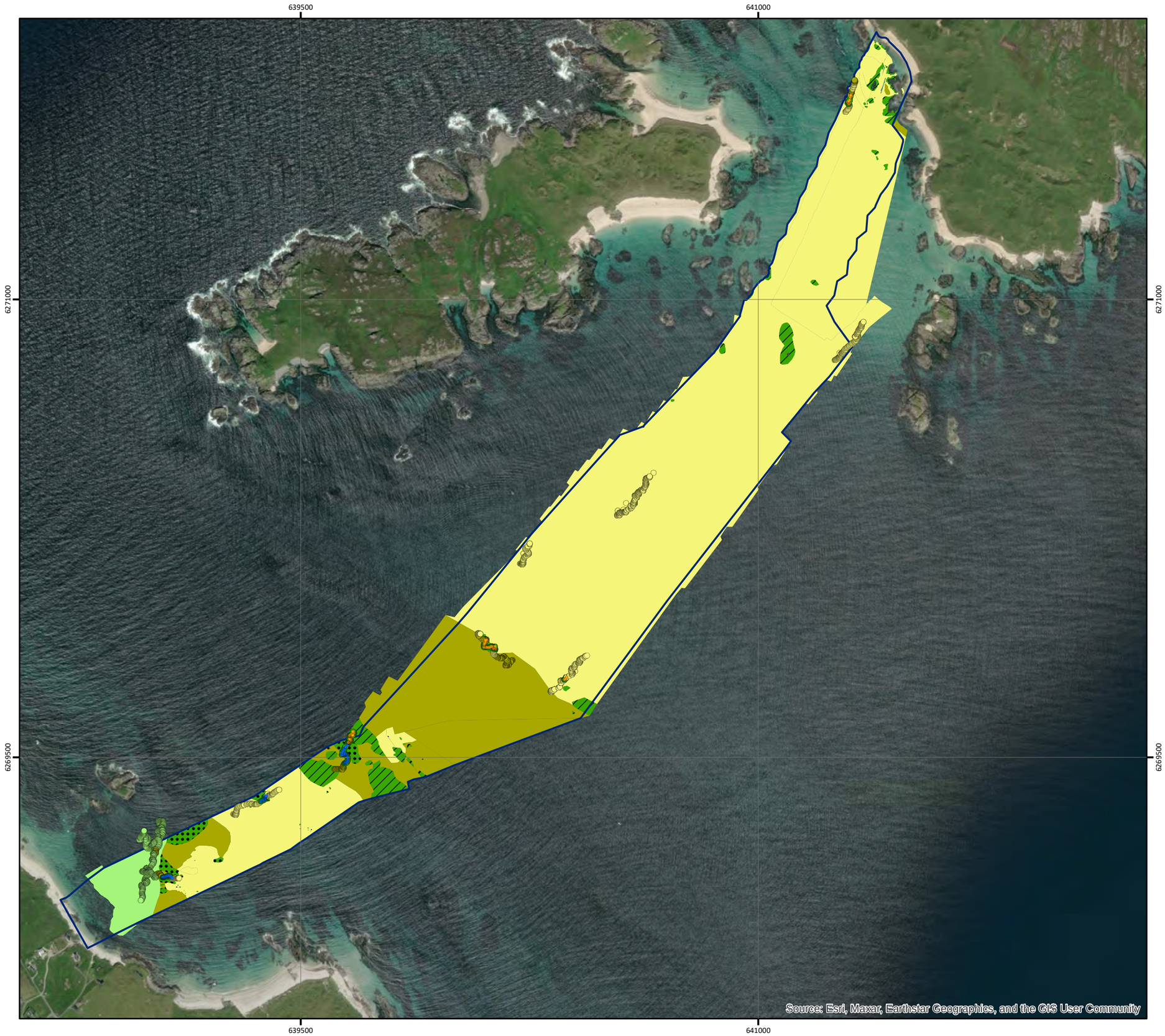
Several potentially sensitive habitats or species were identified within the Installation Corridor. The potential extent of the sensitive habitat features is presented in Figure 8-8 (Drawing Number: P663K-HAB-010),Figure 8-9 (Drawing Number: P2663K-HAB-016), Figure 8-10 (Drawing Number: P2663K-HAB-015), Figure 8-11 (Drawing Number: P2663K-HAB-012), Figure 8-12 (Drawing Number: P2663K-HAB-013), Figure 8-13 (Drawing Number: P2663K-HAB-014) and Figure 8-14 (Drawing Number: P2663K-HAB-011).

These habitats and species are detailed below:

- **'Kelp Beds'** – The habitat '*Laminaria hyperborea* and Foliose Red Seaweeds on Moderately Exposed Atlantic Infralittoral Rock' (MB121A) is a component of the Scottish Priority Marine Feature (PMF) 'Kelp Beds', an OSPAR (2008) threatened and / or declining habitat and a potential Annex I habitat. 'Kelp Beds' create habitats for many species including sea anemones, sponges and other seaweeds. *L. hyperborea* is considered as an ecosystem engineer by influencing light levels, physical disturbance, sedimentation rates and water flow and the biotopes created increase the three-dimensional complexity of unvegetated rock (Stamp, Burdett & Tyler-Walters, 2023).
- **'Kelp and Seaweed Communities on Sublittoral Sediment'** – The habitats 'Kelp and Seaweed Communities on Atlantic Infralittoral Sand' (MB521) and 'Kelp and Seaweed Communities on Atlantic Infralittoral Coarse Sediment' (MB321) are PMF habitats. This habitat is only found in shallow water (up to 20m) and can cover a wide variety of substrates (muddy sands and gravels through to cobbles and boulders). It is widespread on the west coast of Scotland and typically includes the sugar kelp (*S. latissima*), the bootlace weed (*C. filum*) and various filamentous red and brown seaweeds (FeAST, 2023). They host a wide variety of fauna including burrowing polychaetes, crustaceans and echinoderms.
- **Annex I reef ('Bedrock Reef')** – Within the Installation Corridor, areas of rock were assessed to meet the criteria of a 'Bedrock Reef' (Parry, 2015) thus qualifying as Annex I (1170) – Reef, as described within the Habitats Directive (European Commission, 2021). 'Bedrock Reef' is also listed as a UK Post-2010 Biodiversity Framework (formally UK BAP) Habitat. 'Bedrock Reef' can be defined as encompassing hard compact substrata, specifically, rocks (including soft rock, e.g. chalk) of geogenic origin. Annex I 'Bedrock Reef' habitat occurs where soft (e.g., clay) or hard bedrock arises from the surrounding seabed, providing a stable habitat for attachment for a diverse range of epibiota.
- **Annex I reef ('Stony Reef')** – Within the Installation Corridor, areas of cobbles and boulders were assessed to meet the criteria of 'Stony Reef' (Irving, 2009) thus qualifying as Annex I (1170) – Reef, as described within the Habitats Directive (EUR 28, 2013). 'Stony Reef' can be defined as encompassing hard compact substrata, specifically, boulders and cobbles (generally >64mm in diameter of geogenic origin. 'Stony Reef' habitats occur when stable hard substrata, namely cobbles and boulders > 64mm in diameter arise from the surrounding habitat, creating a habitat colonised by a variety of fauna and flora species.
- **'Seagrass Beds'** – The subtidal habitat '*Zostera marina/anguistifolia* Beds on Atlantic Infralittoral Clean or Muddy Sand' (MB5223) is a component of the PMF habitat 'Seagrass Beds', an OSPAR (2008) threatened and / or declining habitat and an Annex I habitat and is listed as a UK Post-2010 Biodiversity Framework (formally UK BAP) habitat. This habitat is composed by dense *Zostera* beds punctuated by pockets of sand and hard substrate characterised by species such as *S. latissima*, *Chorda filum* and infaunal species such as *Ensis* spp. and *Echinocardium cordatum.* Seagrasses provide ecosystem services such as shelter, nursery habitats, corridor habitats and are considered to be the most productive of shallow, sedimentary environments (d'Avack *et al*., 2024).
- **'Subtidal Sands and Gravels'** – 'Subtidal Sands and Gravels' habitat is listed as a UK Post-2010 Biodiversity Framework (formally UK BAP) habitat. This habitat is home to a variety of species

including polychaetes, crustaceans and fish which rely on the habitat for breeding, feeding and shelter. Cable installation activities can alter tidal flow regimes and wave exposure, or result in deposition of sediments that influence the structure of sedimentary habitats (UK Biodiversity Action Plan, 2008). In the Installation Corridor, areas of 'Faunal Communities of Full Salinity Atlantic Infralittoral Sand' (MB523) and 'Faunal Communities in Full Salinity Atlantic Infralittoral Coarse Sediment' (MB323) can be considered as 'Subtidal Sands and Gravels'.

No other Annex I habitats, OSPAR threatened and / or declining species and habitats or Post-2010 Biodiversity Framework (formally UK BAP) priority habitats and species were observed within the survey area.



COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

HABITATS
Subtidal Habitats and Ground-Truthing Stations

Drawing No: P2663K-HAB-010 | **A**

Legend

- Installation Corridor

Subtidal Sensitive Habitats

- Bedrock Reef
- Stony Reef
- Kelp Beds
- Kelp and Seaweed Communities on Sublittoral Sediment
- Seagrass Beds
- Subtidal Sands and Gravels

Sensitive Habitats Ground-truthing

- Bedrock Reef
- Stony Reef
- Kelp Beds
- Kelp and Seaweed Communities on Sublittoral Sediment
- Subtidal Sands and Gravels
- Seagrass Beds

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HABITATS
Kelp Beds

Drawing No: P2663K-HAB-016 | **A**

Legend

Installation Corridor

Sensitive Habitats Ground-truthing

- Kelp Beds

Subtidal Sensitive Habitats

Kelp Beds

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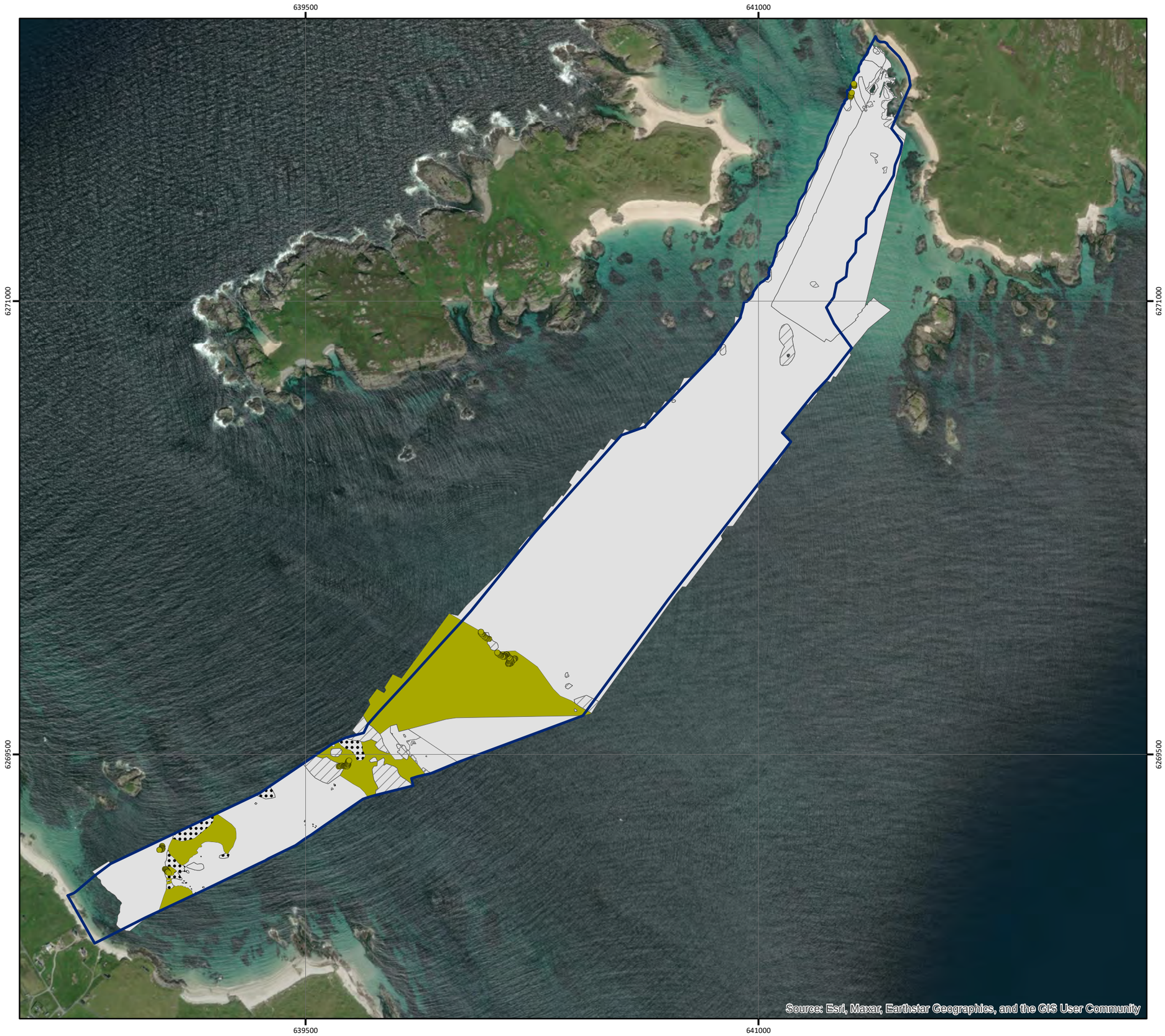

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HABITATS

Kelp and Seaweed Communities on Sublittoral Sediment

Drawing No: P2663K-HAB-015 | **A**

Legend

Installation Corridor

Sensitive Habitats Ground-truthing

- Kelp and Seaweed Communities on Sublittoral Sediment

Subtidal Sensitive Habitats

Kelp and Seaweed Communities on Sublittoral Sediment

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COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

HABITATS
Bedrock Reef

Drawing No: P2663K-HAB-012 | **A**

Legend

Installation Corridor

Sensitive Habitats Ground-truthing

- Bedrock Reef

Subtidal Sensitive Habitats

Bedrock Reef

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HABITATS
Stony Reef

Drawing No: P2663K-HAB-013 | **A**

Legend

Installation Corridor

Sensitive Habitats Ground-truthing

- Stony Reef

Subtidal Sensitive Habitats

- Stony Reef

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HABITATS
Seagrass Beds

Drawing No: P2663K-HAB-014 | **A**

Legend

- Installation Corridor

Sensitive Habitats Ground-truthing

- Seagrass Beds

Sensitive Habitats

- Seagrass Beds

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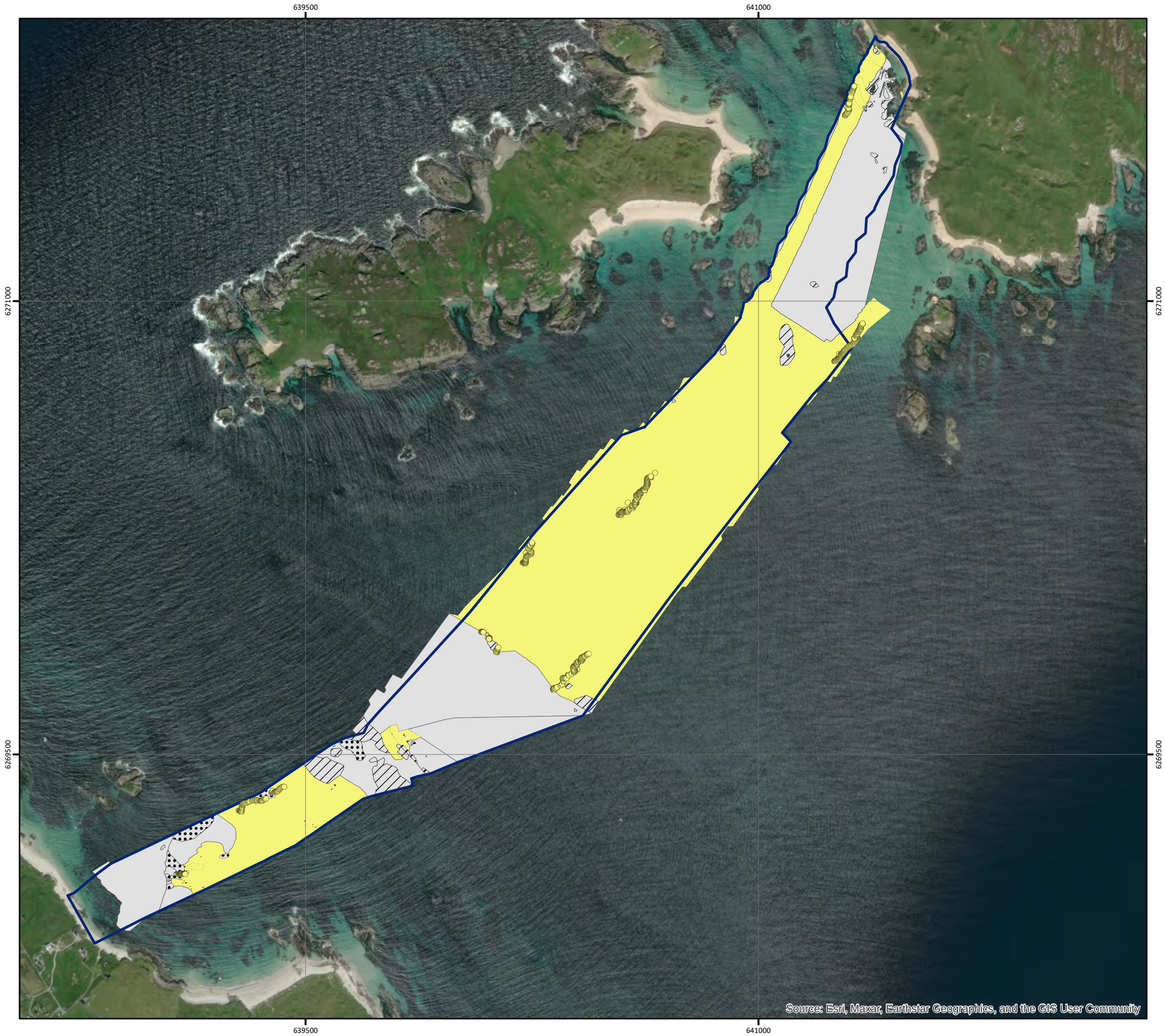

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

HABITATS
Subtidal Sands and Gravels

Drawing No: P2663K-HAB-011 | **A**

Legend

Installation Corridor

Sensitive Habitats Ground-truthing

Subtidal Sands and Gravels

Subtidal Sensitive Habitats

Subtidal Sands and Gravels

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8.4 Impact Assessment

8.4.1 Cable Installation Summary

At both landfall sites, the cable will be buried within the intertidal area using an Open Cut Trench (OCT) method, from Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS). The length of the trench up to MHWS will be approximately 29.7m at the Coll landfall and 43.2m at the Tiree landfall, with both trenches having a width of 1m and a target depth of 0.8m from ground level to the top of the cable. Additionally, a second trench will be required for a fibre optic earth. Both the armour earth and fibre optic earth will extend to 50m below MLWS. The trenches will be backfilled with the excavated material such that the intertidal area will be restored to pre-work conditions. The excavator will work within an approximate 20m corridor, during these trenching operations. Up to 20 concrete earthing clump weights will also be used for the surface laid section of earthing wires below MLWS with a footprint each of 1m^2.

The decommissioning of small sections of out of service cables may be required in the subtidal zone. Where out of service cables are cut, clump weights may be required to secure the cable ends. These can be concrete, steel or iron. A maximum of ten clump weights will be used with a footprint of 1m^2 each.

The entire length of the cable will be around 4.3km, of which around 73m will be intertidal and buried. The remaining 4.23km will be surfaced laid within the subtidal Installation Corridor and will cover a worst-case total of up to 774m^2 (0.132m cable diameter, 1,637m of 0.26m diameter cast iron split pipe). Additional, cable protection will be required along certain points of the cable route. Where applicable, impacts on sensitive habitats have been assessed to account for the potential presence of cable protection including cast iron split pipe, rock bags, concrete mattresses and clump weights.

There is potential for shallow burial of the cable in areas where cast iron split pipe or rock bags are not suitable and where sandwaves are present to aid embedment of the cable, minimise the risk of free spans and aid cable stabilisation. A diver-operated dredge pump may be used or a Controlled Flow Excavator (CFE). This technique provides a precise, minimally invasive approach to sediment removal and is often preferred in sensitive or shallow areas as it minimizes unnecessary seabed disturbance while providing stable cable protection in tidal zones. If required, this approach will only be used in 'Subtidal Sands and Gravels' habitat.

In worst-case scenario, up to 68 four tonne rock bags (4.52m^2 each) will be used for stabilisation. In addition, up to 28 eight tonne rock bags (7.07m^2 each) will be used. For contingency, up to nine concrete mattresses (18m^2 each) have been included for the Marine Licence application. Therefore, given the design dimensions this represents a total worst-case cable protection coverage area of 308m^2 for two tonne rock bags, 198m^2 for eight tonne rock bags and 162m^2 for concrete mattresses, if required. Cast iron split shell protection will be used and placed on both shore ends of the cable. This will be used to stabilise and protect the cable and will be surface laid from MHWS to up to 320m below MLWS at Coll and up to 540m below MLWS at Tiree. Cast iron split shell protection may also be used in the Gunna Sound, for approximately 370m and at cable crossings, approximately 50m. There is also an option to use cast iron split shell protection in areas of reduced sediment, for approximately 120m. There may be use of a Diver Support Vessel (DSV) for cast iron split shell protection installation of which may require the use of up to two spud legs, and potentially a two or four-point mooring spread as an alternative. The number of spud legs expected to be used will be two up to 13m LAT, with a maximum diameter of 914mm. The mooring spread, if required, will have a worst-case total coverage of 561.6m^2 of which accounts for the anchor setting and recovery drag distances.

Due to the shallow nature of the seabed along the cable route and the resulting long shore-end pull in, a shallow draft multi-purpose jack-up vessel may be used to assist when positioning the cable. The

jack-up vessel would be towed into position by a multicat (such as the Forth Warrior) where it will be pinned into place. The number of spud legs expected to be used will be four, with a leg diameter of 0.76m and combined worst-case coverage of 1.81m^2. A small floating pontoon may also be used, secured in place by spud legs or anchors. Up to four spud legs are expected if a pontoon is required, with a leg diameter of 0.41m and worst-case coverage of 0.53m^2.

Best practice for cable installation includes micro-routing to avoid sensitive habitats such as Annex I reef and PMFs such as 'Seagrass Beds'. Due to the broad scale sensitive habitats identified within the Installation Corridor, routeing around some these features has not been possible and therefore micro-routing and the installation techniques proposed have been carefully considered to minimise the impact of operations on these environmentally sensitive receptors. Embedded mitigation is discussed further in sections 4.2 and 4.3.

8.4.2 Physical Change (to Another Substratum)

8.4.2.1 Intertidal

Cast iron split shell protection will be used and placed on both shore ends of the cable. This is an articulated cast iron shell design that interlocks around the cable and is fixed with bolted end clamps. The total (worst case) length of cable protected with cast iron split shell will be up to 860m for both landfalls combined. This will be buried in a trench in the intertidal zone and be surface laid in the initial subtidal sections of the cable route. Trenching activities will lead to a temporary loss of habitat within the direct trenching footprint. In areas where the surface is rocky, a rock pecker may be utilised to penetrate rock and achieve burial depth.

Of the sensitive habitats identified along the Installation Corridor, the Annex I habitats 'Yellow and Grey Lichens on Atlantic Supralittoral Rock' (MA1211), 'Coastal Dunes and Sandy Shores' (N1), 'Atlantic, Baltic and Arctic Sand Beach' (N11), '*Semibalanus balanoides*, *Fucus vesiculosus* and Red Seaweeds on Exposed to Moderately Exposed Eulittoral Rock' (MA12232), 'Barren Littoral Coarse Sand' (A2.221) and 'Fucoids on Sheltered Marine Shores' (A1.31) could be affected. 'Fucoids on Sheltered Marine Shores' (A1.31), of which is listed on the Bern Convention, and dog whelk (*N. lapillus)* individuals, listed as an OSPAR threatened or declining species, could also be affected (OSPAR, 2008).

In soft sediments, trenching activities will lead to a temporary loss of habitat within the direct trenching footprint. Habitat loss in these areas will be localised and temporary, the seabed is expected to be re-colonised after several tidal cycles. In hard substrates, where a rock pecker is required, there will be a permanent loss of habitat. This habitat loss will be localised due to the relatively small footprint of the sections of burial, proposed at each landfall. While trenching and burial may lead to localised loss in habitat or species, such loss will not be significant in proportion to the scale of the habitats and species present. To minimise this potential habitat loss, the use of rock peckers will only be utilised where necessary.

Installation activities may also lead to a physical change of substratum. Hard substrate which is reworked or introduced is expected to be support colonisation of some species, the ecological functions and species diversity are therefore expected to return to near baseline conditions after a short recovery period. Any change which does not return to baseline levels will not be significant in proportion to the scale of the habitats present.

The dog whelk species *N. lapillus* was recorded in the intertidal survey at Tiree. The population decline is known to have been caused by the organotin Tributyltin (TBT) used in antifoul paints, which caused imposex for this gastropod. In Europe this substance was banned on vessels under 25 metres in 1987, and an international ban was imposed in 2008. In 2018 an OSPAR update to the background status for this species indicated that in the UK "the conservation of *N. lapillus* is not a national objective. *N. lapillus* occurs everywhere along the coast on rocky substrates. The condition of the population continues to improve.", monitoring surveys within the UK have shown population recovery as well as

distributional range increases of this species, since before the TBT ban (OSPAR, 2018). Currently there is no OSPAR recommendation for the protection of this species.

8.4.2.2 Subtidal

The cable will be surface laid throughout the subtidal section of the route, with the exception of limited sections that may be buried. Split pipe will be used to stabilise and protect the cable and will be surface laid to up to 320m below MLWS at Coll and up to 540m below MLWS at Tiree. Cast iron split pipe shells will change the substrate type where they are used, however it is expected that they will be colonised by sessile encrusting organisms, similar to the surrounding hard substratum and can also attract mobile macrofauna (Taormina *et al*., 2018). Given the relatively small diameter of the cable and its protection systems, the impact on habitats and biological communities in the cable footprint will be localised and short term (Tillin *et al.,* 2010).

The decommissioning of small sections of out of service cables may be required in the subtidal zone and will result in a change to the existing conditions with deposition of clump weights, and loss of habitat occurring when the cable sections are removed. This habitat loss will be temporary and localised due to the small footprint of the out of service cable removed and will allow for the seabed occupied to be re-colonised. As such, while removal of any out of service cable may lead to localised loss in habitat associated with the cable itself, such loss will not be significant in extent. Where out of service cables are cut, clump weights may be required to secure the cable ends. These can be concrete, steel or iron. A maximum of ten clump weights will be used with a footprint of 1m^2 each. Therefore, any loss or change of habitat associated with the use of clump weights will not be significant in proportion to the scale of the habitats present.

Rock bag placement may be required along sections of the Installation Corridor, to protect and stabilise the cable. Although cable protection will only be used where necessary, where it is used the seabed habitat within the footprint of the protection will be lost and replaced with, in places, a harder substrate, changing the seabed type. In addition, concrete mattresses may be used to stabilise the cable and / or for protection at cable crossings. Given the design dimensions, rock bag placement represents a worst-case coverage area of 308m^2 for two tonne rock bags, 198m^2 for eight tonne rock bags and 162m^2 for concrete mattresses, if required.

Environmentally sensitive habitats recorded in the Installation Corridor including the Annex I habitats ‘Bedrock Reef’ and ‘Stony Reef’, the PMFs ‘Kelp Beds’, ‘Kelp and Seaweed Communities on Sublittoral Sediment’ and ‘Seagrass Beds’ and the UK Post-2010 Biodiversity Framework (formally UK BAP) habitat ‘Subtidal Sands and Gravels’ could be present where cable protection may be required.

The Annex I ‘Bedrock Reef’ and ‘Stony Reef’ habitat are present in the northern and southern extents of the Installation Corridor (Figure 8-11 (Drawing Number: P2663K-HAB-012) and Figure 8-12 (Drawing Number: P2663K-HAB-013)). To protect and stabilise the cable, cast iron split pipe may be used as the cable crosses these features. The use of concrete mattresses and rock bags may also be required in biotopes that constitute these features. In addition, small sections of out of service cables may be removed (if required) in these habitats and clump weights required to secure the cable ends. Any species found in the direct footprint of cable removal, rock bag, clump weights or concrete mattress placement would likely be lost, however ‘Bedrock Reef’ and ‘Stony Reef’ habitats are comprised of hard substrate dominated by species which are often rapid colonisers, capable of early reproduction and rapid growth (Sebens, 1986). It is therefore expected that epifauna will be able to colonise introduced hard substrates following cable installation, and impacts will not be significant. Any loss or change of habitats associated with decommissioning of the out of service cable will not be significant in extent. Best practice for cable installation can include micro-routing around ‘Bedrock Reef’ and ‘Stony Reef’. This will be practiced where possible, however where these features are unavoidable, rock protection measures will be used conservatively to have minimal environmental impact.

The PMF 'Kelp Beds' was found in the northern and southern extents of the Installation Corridor (Figure 8-9 (Drawing Number: P2663K-HAB-016)). To protect and stabilise the cable, cast iron split pipe may be used as the cable crosses this feature. The use of concrete mattresses and rock bags may also be required in biotopes that constitute this feature. In addition, small sections of out of service cables (if required) may be removed in these habitats and clump weights required to secure the cable ends. Any species found in the direct footprint of rock bag, clump weights or concrete mattress placement would likely be lost, however the rock bags may provide additional substrate for re-colonisation of kelp, in time. Recovery is likely to be rapid for the majority of species (FeAST, 2023). The 'Kelp Beds' identified consist of kelp species such as *L. hyperborea* which can recover within two to six years (Kain, 1979; Birkett *et al*., 1998; Christie *et al*., 1998). As such, while rock bag, clump weight and concrete mattress placement would lead to a loss of PMF 'Kelp Beds' habitat, this would not be a permanent change. Therefore, the effect of physical change on this habitat will be temporary and not significant.

'Kelp and Seaweed Communities on Sublittoral Sediment' was observed towards the northern, southern and central extents of the Installation Corridor, with small patches observed towards the northern extent (Figure 8-10 (Drawing Number: P2663K-HAB-015)). To protect and stabilise the cable, cast iron split pipe may be used as the cable crosses this feature. The use of concrete mattresses and rock bags may also be required in biotopes that constitute this feature. In addition, small sections of out of service cables (if required) may be removed in this habitat, and clump weights required to secure the cable ends. Any fauna in the direct footprint of the cable, clump weights or cable protection in this PMF would likely be lost. A change in substrate type may change the species present and individual biotopes but not necessarily affect the diversity of the main characterising kelps and seaweeds (FeAST, 2023). Recovery is likely to be rapid for the majority of species. All the characterising species within this biotope can successfully grow on rock / hard substrates and *S. latissima* is a fast-growing kelp that can recover relatively quickly after disturbance. Other kelp species, such as *L. hyperborea*, can form a new canopy within two to six years (Birkett *et al*., 1998; Christie *et al*., 1998). Physical change of substrate, however, may lead to a change in species present and a loss of the biotope. To minimise this potential PMF habitat loss, the use of clump weights will only be utilised where necessary, and rock bags or concrete mattresses will not be used within this biotope. The effect of physical change on the habitat extent will not be significant.

The PMF 'Seagrass Beds' was observed in the southern extent of the Installation Corridor (Figure 8-13 (Drawing Number: P2663K-HAB-014)). To protect and stabilise the cable, cast iron split pipe is proposed, as the cable crosses the extent of this feature. In addition, small sections of out of service cables may be removed (if required) in this habitat, and clump weights required to secure the cable ends, although this is considered unlikely. Any habitat found in the direct footprint of cable removal and clump weights would likely be lost. The change in substrate type may change the species present and individual biotopes and recovery is likely to be low (FeAST, 2023), although 'Seagrass Beds' surrounding the footprint of the cable or clump weights would not be significantly impacted. In addition, any loss or change of habitat associated with decommissioning of the out of service cable and use of clump weights will not be significant in proportion to the scale of the habitats present. To minimise this potential PMF habitat loss, the use of clump weights will only be utilised where necessary, and rock bags or concrete mattresses will not be used within this biotope. In addition, no mooring spread or spud legs will be used in this habitat, as mentioned in Sections 8.4.3 and 8.4.4. The effect of physical change on the habitat extent will not be significant.

The UK Post-2010 Biodiversity Framework (formally BAP) habitat 'Subtidal Sands and Gravels' was found throughout the Installation Corridor (Figure 8-14 (Drawing Number: P2663K-HAB-011)). To protect and stabilise the cable, cast iron split pipe may be used as the cable crosses parts of this feature. The use of concrete mattresses and rock bags may also be required in biotopes that constitute this feature. In addition, small sections of out of service cables may be removed (if required) in this habitat, and clump weights required to secure the cable ends. Any habitat and species found in the

direct footprint of the cable and any cable protection placement would likely be lost. 'Subtidal Sands and Gravels' are sensitive to physical change associated with cable laying (UK Biodiversity Action Plan, 2008). However, as the loss of habitat and the disturbance is spatially highly localised, the overall significance of the installation of the replacement cable has been assessed as not significant.

Best practice for cable installation can include micro-routing around sensitive habitats (Table 4-1). This will be practiced where possible and any rock protection measures will be used conservatively to have a minimal environmental impact.

8.4.3 Abrasion / Disturbance at the Surface of the Substratum

8.4.3.1 Intertidal

Of the sensitive habitats identified along the Installation Corridor, the Annex I habitats 'Yellow and Grey Lichens on Atlantic Supralittoral Rock' (MA1211), 'Coastal Dunes and Sandy Shores' (N1), 'Atlantic, Baltic and Arctic Sand Beach' (N11), '*Semibalanus balanoides*, *Fucus vesiculosus* and Red Seaweeds on Exposed to Moderately Exposed Eulittoral Rock' (MA12232), 'Barren Littoral Coarse Sand' (A2.221) and 'Fucoids on Sheltered Marine Shores' (A1.31) could be affected. 'Fucoids on Sheltered Marine Shores' (A1.31), of which is listed on the Bern Convention, and dog whelk (*N. lapillus)* individuals, listed as an OSPAR threatened or declining species, could also be affected (OSPAR, 2008).

Where the cable will be buried within the intertidal zone, installation activities will take place over a short-time period and any abrasion events will be temporary and will be minimal once installation is complete. In addition, *N. lapillus* are 'Not sensitive' to this pressure (Tyler-Walters, 2007). Therefore the potential impact is expected to not be significant.

8.4.3.2 Subtidal

The pressure 'abrasion / disturbance at the surface of the substratum' will occur in areas where the cable is surface laid, throughout the subtidal route. The use of cast iron split shell protection , rock bags and concrete mattress placement in some areas will protect and stabilise the cable to reduce cable movement and abrasion. A Pre-Lay Grapnel Run (PLGR) may be required prior to operations commencing. The removal of any boulders or debris may also cause abrasion / disturbance.

Decommissioning of sections of any out of service cable (if required) could result in abrasion of the underlying substrate. Loose ends of the decommissioned cable will be secured with clump weights which will minimise future abrasion. This should ensure that abrasion pressures should be confined to one decommissioning event and therefore impacts will be localised and temporary.

In addition, the use of a mooring spread or spud legs, if required for vessel positioning, may lead to abrasion and disturbance in the direct footprint of the anchors and chains or base of the spud legs. The two or four-point mooring spread may be required to be left in place between working days. Although, its use and impact will be restricted to the duration of cable laying activities and will be temporary. Deployment will be kept to a minimum and if possible sited to avoid PMF habitats using survey data.

There is potential for shallow burial of the cable in areas where cast iron split pipe or rock bags are not suitable and where sandwaves are present. A diver-operated dredge pump may be used or a CFE. This technique provides a precise, minimally invasive approach to sediment removal and is often preferred in sensitive or shallow areas. If required, this approach will only be used in 'Subtidal Sands and Gravels' habitat and will not be used in or near sensitive habitats such as 'Seagrass Beds'.

Of the sensitive habitats identified along the Installation Corridor, Annex I habitats 'Bedrock Reef' and 'Stony Reef', the PMFs 'Kelp Beds', 'Kelp and Seaweed Communities on Sublittoral Sediment' and 'Seagrass Beds' and the UK Post-2010 Biodiversity Framework (formally UK BAP) habitat 'Subtidal Sands and Gravels' could be affected. Although anchoring in the PMF 'Kelp Beds' and Annex I habitats

'Bedrock Reef' and 'Stony Reef' is unlikely due to the hard nature of the seabed, which is unsuitable for anchoring, the mooring chains could cause abrasion and disturbance of the seabed in these areas.

The sensitivity of 'Bedrock Reef' biotopes to abrasion is considered to be low due to the habitats high resilience enabling recovery estimated within two years (Jasper & Hill, 2015). If required, the use of a mooring spread, or spud legs, could lead to abrasion and disturbance in the direct footprint and chain sweep area. The impact of the use of spud legs will be limited to the direct footprint at the base of the spud legs. The area impacted by the use of a mooring spread will be larger than that of the cable itself however, the impact will be confined to the physical footprint and temporary, as it will be limited to the duration of cable laying activities. Kelp species observed in this habitat can form a new canopy within two to six years (Christie *et al*., 1998). Deployment of the mooring spread will be kept to a minimum in order to reduce the disturbance to the seabed. The impact will therefore be slight.

The 'Stony Reef' biotopes observed in the Installation Corridor are considered to have low to medium sensitivity to abrasion, with macroalgae dominated biotopes expected to recover within a few years (Jasper & Hill, 2015). Any sedentary species in this area would likely suffer from the effects of abrasion however faunal turf communities do not show large signs of damage from abrasion and are mostly sensitive to repeated abrasion (Boulcott & Howell, 2011). Abrasion events will be temporary and localised in nature, ensuring that a minimal number of individuals would be affected and the impact would not be significant. If required, the use of a mooring spread could lead to abrasion and disturbance in the direct footprint and chain sweep area. The impact of the use of spud legs will be limited to the direct footprint of the base of the spud legs. The area impacted by the use of a mooring spread will be larger than that of the cable itself however, the impact will be confined to the physical footprint and temporary, as it will be limited to the duration of cable laying activities. Kelp species observed in this habitat can form a new canopy within two to six years (Christie *et al*., 1998). Deployment of the mooring spread will be kept to a minimum in order to reduce the disturbance to the seabed. The impact will therefore be slight.

The PMF 'Kelp Beds' has been assessed to have medium sensitivity to abrasion (Stamp, Burdett & Tyler-Walters, 2023). Abrasion has the potential to remove the canopy forming kelp *L. hyperborea*, which dominated the 'Kelp Beds' observed in the Installation Corridor. However, there is evidence that immature kelp are largely unaffected and a new canopy can form within two to six years (Christie *et al*., 1998). In addition, other kelp species commonly observed in 'Kelp Beds' habitats, such as *S. latissima*, are fast-growing with potential to rapidly form a new canopy (Birkett *et al*., 1998). Abrasion events will be temporary and localised in nature, the narrow cable diameter and careful placement of cable protection measures should ensure that a minimal density of kelp would be affected. If required, the use of a mooring spread or spud legs in 'Kelp Beds' could also impact this habitat, however the impact will be confined to the physical anchor and chain footprint, or base of the spud legs, and will be temporary. Deployment of the mooring spread will be kept to a minimum in order to reduce the disturbance to the seabed. The impact will therefore be slight.

The PMF 'Kelp and Seaweed Communities on Sublittoral Sediment' has been assessed to have low sensitivity and medium tolerance to abrasion (FeAST, 2023). Abrasion can potentially remove macroalgae and cause localised mobility of the substrata. However, many characteristic mobile and infaunal species are likely to avoid most effects and recoverability is likely to be rapid for the majority of species (FeAST, 2023). If required, the use of a mooring spread or spud legs in 'Kelp and Seaweed Communities on Sublittoral Sediment' could also impact this habitat, however the impact will be confined to the physical anchor and chain footprint, or base of the spud legs, and will be temporary. Deployment of the mooring spread will be kept to a minimum in order to reduce the disturbance to the seabed. As abrasion events will be temporary and localised in nature, the potential impact will therefore be slight.

The PMF 'Seagrass Beds' has been assessed to have medium sensitivity to abrasion (FeAST, 2023). Physical disturbance and removal of plants can lead to increased patchiness and destabilisation of the

'Seagrass Beds', which in turn can lead to reduced sedimentation within the bed, increased erosion, and loss of large areas seagrass (Davison & Hughes, 1998). Small scale sediment disturbance, however, may stimulate growth and removal of small patches of sediment allows recolonisation by seedlings (Davison & Hughes, 1998). The resilience and recovery of 'Seagrass Beds' to abrasion depends on the frequency and extent of disturbance (d'Avack *et al*., 2014). The impacts to 'Seagrass Beds' will be mostly limited to installation activity and are expected to represent only a small proportion of the habitat extent in this area. No rock bags, concrete mattresses, spud legs or mooring spread will be used in this habitat, nor a PLGR undertaken. The installation activities will include stabilisation of the cable through other areas of the Installation Corridor, to minimise the cable movement and therefore the zone that abrasion can occur. Due to the temporary and localised nature of the abrasion event, impacts will be slight.

The UK Post-2010 Biodiversity Framework (formally UK BAP) habitat 'Subtidal Sands and Gravels' can be sensitive to abrasion / disturbance at the surface of the substratum, and this can lead to the disruption and / or minor removal of seabed sediments which structure the habitat communities. However, the disturbance is considered short-term and spatially localised. The use of a mooring spread or spud legs in this area could cause damage to the biological communities associated with this habitat. The impact, however, will be confined to the footprint of the mooring spread and chain sweep area, or the base of the spud legs, and will be temporary. There also is potential for shallow burial of the cable in areas where cast iron split pipe or rock bags are not suitable and where sandwaves are present. If required, this will be undertaken using a diver operated dredge pump or CFE, and could impact this habitat due to the potential disruption and removal of seabed sediments. However, installation activities will take place over a short-time period and any abrasion events will be temporary and will not occur once installation is complete. In addition, the technique provides a precise, minimally invasive approach to sediment removal. Due to the localised footprint the impact is expected to be slight.

8.4.4 Penetration and / or Disturbance of the Substrate Below the Surface of the Seabed

8.4.4.1 Intertidal

Of the sensitive habitats identified along the Installation Corridor, the Annex I habitats 'Yellow and Grey Lichens on Atlantic Supralittoral Rock' (MA1211), 'Coastal Dunes and Sandy Shores' (N1), 'Atlantic, Baltic and Arctic Sand Beach' (N11), '*Semibalanus balanoides*, *Fucus vesiculosus* and Red Seaweeds on Exposed to Moderately Exposed Eulittoral Rock' (MA12232), 'Barren Littoral Coarse Sand' (A2.221) and 'Fucoids on Sheltered Marine Shores' (A1.31) could be affected. 'Fucoids on Sheltered Marine Shores' (A1.31), of which is listed on the Bern Convention, and dog whelk (*N. lapillus)* individuals, listed as an OSPAR threatened or declining species, could also be affected (OSPAR, 2008).

Where the cable will be buried in soft sediments, a single over-turning event is likely to lead to the loss of species present in the intertidal area of the Installation Corridor, with damage and mortality of epifauna potentially occurring. However, after the trench material is re-instated it will be re-colonised. Mobile species, such as *N. lapillus*, will be able to relocate back to the area. Therefore, the effects of trenching on the intertidal biotopes and species will be temporary and not result in the permanent loss of habitat, ensuring any impact is not significant.

In areas where the substrate is rocky, a rock pecker may be used to achieve burial depth. This will penetrate rock and cause disturbance of the substrate below the surface of the seabed and any species present may be lost. Only substrate in the direct vicinity of the rock pecker will be impacted and so habitat and species loss will be restricted to a spatially small area, relative to the extent of the surrounding environment. To minimise this potential habitat loss, the use of rock peckers will only be used where necessary.

8.4.4.2 Subtidal

The marine cable will be surface laid in the subtidal area, and no trenching will be required for the installation. There is potential, however, for shallow burial of the cable in areas where cast iron split pipe or rock bags are not suitable and where sandwaves are present. If required, this will be undertaken using a diver operated dredge pump or CFE. This technique provides a precise, minimally invasive approach to sediment removal and is often preferred in sensitive or shallow areas. Only the UK Post-2010 Biodiversity Framework (formally UK BAP) habitat 'Subtidal Sands and Gravels' could be impacted by this.

There may be use of a DSV for cast iron split shell protection installation of which may require the use of up to two spud legs, and potentially a two or four-point mooring spread as an alternative. The number of spud legs expected to be used will be two up to 13m LAT, with a maximum diameter of 914mm. The mooring spread, if required, will have a worst-case total coverage of 562m^2 of which accounts for the anchor setting and recovery drag distances. Due to the shallow nature of the seabed along the cable route and the resulting long shore-end pull in, a shallow draft multi-purpose jack-up vessel may be used to assist when positioning the cable. The jack-up vessel would be towed into position by a multicat (such as the Forth Warrior) where it will be pinned into place. The number of spud legs expected to be used will be four, with a leg diameter of 0.76m and worst-case coverage of 1.81m^2. A small floating pontoon may also be used, secured in place by spud legs or anchors. Up to four spud legs are expected if a pontoon is required, with a leg diameter of 0.41m and worst-case coverage of 0.53m^2. The sensitive benthic habitats in the Installation Corridor are Annex I 'Bedrock Reef' and 'Stony Reef', the PMFs 'Kelp Beds', 'Kelp and Seaweed Communities on Sublittoral Sediment' and 'Seagrass Beds' and the UK Post-2010 Biodiversity Framework (formally UK BAP) habitat 'Subtidal Sands and Gravels'. Of these habitats, only the PMFs 'Kelp and Seaweed Communities on Sublittoral Sediment' and the UK Post-2010 Biodiversity Framework (formally UK BAP) habitat 'Subtidal Sands and Gravels' are likely to be affected as the use of anchors and spud legs is likely to be avoided in rocky substrates and will be avoided in 'Seagrass Beds', to minimise impacts on this habitat. Due to the relatively small area that could be damaged, installation activities are not likely to be significant in proportion to the scale of the biotopes encountered. Deployment of any mooring spreads and spud legs will be kept to a minimum to reduce disturbance to the seabed.

The PMF 'Kelp and Seaweed Communities on Sublittoral Sediments' can be sensitive to penetration and / or disturbance of the substrate below the surface of the seabed as some species, such as attached macroalgae, are likely to be removed by the physical disturbance (FeAST, 2023). The disturbance, however, is considered short-term and spatially localised. Due to the footprint of the mooring spread and spud legs, the overall impact is expected to be slight.

The UK Post-2010 Biodiversity Framework (formally UK BAP) habitat 'Subtidal Sands and Gravels' can be sensitive to penetration and / or disturbance of the substrate below the surface of the seabed as this can lead to the disruption and removal of seabed sediments which structure the habitat communities. The disturbance, however, is considered short-term and spatially localised. There is also potential for shallow burial of the cable in areas where cast iron split pipe or rock bags are not suitable and where sandwaves are present. If required, this will be undertaken using a diver operated dredge pump or CFE and a single over-turning event is likely to lead to the loss of species present in the direct footprint, with potential damage and mortality of epifauna. However, mobile species will be able to relocate back to the area, and epifauna will be limited due to the soft (infauna dominated) nature of sediments where this activity will be undertaken. The impact will be confined to the footprint of the cable and will be temporary. Installation activities will take place over a short-time period and the technique will provide a precise, minimally invasive approach. Due to the localised footprint the overall impact is expected to be slight.

No other penetration methods of the seabed will occur.

8.4.5 Smothering and Siltation Rate Changes

8.4.5.1 Intertidal

Intertidal trenching will be undertaken at low tide to reduce the potential for sedimentation. In addition, any sediment disturbance from installation activities will not be significant in extent due to the relatively low level of sediment disturbed by trenching activities. This pressure will be most evident during a flood tide. Typically, the tidal waters of the intertidal zone will have a high sediment load due to the high energy hydrodynamic regime and close interaction with shore sediments. Therefore, species which inhabit these areas are well adapted to such pressures, including increased sediment load.

8.4.5.2 Subtidal

Any decommissioning of the out of service cable will not result in significant sediment dispersion in areas with underlying rocky substrate and only very minor resuspension in areas with underlying sedimentary substrate. This pressure will therefore not result in any significant effect to the surrounding benthic features, with impacts expected to be temporary and species present resilient to smothering and siltation.

Cable laying activities will not result in significant sediment resuspension, as discussed in Section 6. The seabed footprint of the works will be minimal, and largely confined to the physical footprint of the cable itself, along with cable protection measures and vessel positioning measures (spud legs and mooring spread). Disturbed sediment from cable installation and vessel tethering activities, as well as the placement of cable protection measures is expected to settle rapidly and will be very localised.

There is potential for shallow burial of the cable in areas where cast iron split pipe or rock bags are not suitable and where sandwaves are present. If required, this will be undertaken using a diver operated dredge pump or CFE. This technique provides a precise, minimally invasive approach to sediment removal and is often preferred in sensitive or shallow areas. Although this could lead to sediment resuspension and potential smothering, impacts will be localised and are considered to be restricted to the immediate vicinity of the trench (Gooding *et al.,* 2012), with fine material rapidly dispersed in the water. Therefore, only the UK Post-2010 Biodiversity Framework (formally UK BAP) habitat 'Subtidal Sands and Gravels' could be directly impacted by this.

There will be sediments from the intertidal zone, which can be transported into the subtidal zone as well as potential changes in local hydrodynamics resuspending soft sediments. These activities could impact Annex I 'Bedrock Reef' and 'Stony Reef', the PMFs 'Kelp Beds', 'Kelp and Seaweed Communities on Sublittoral Sediment' and 'Seagrass Beds' and the UK Post-2010 Biodiversity Framework (formally UK BAP) habitat 'Subtidal Sands and Gravels'.

The Annex I 'Bedrock Reef' observed in the Installation Corridor consists of species belonging to hydroid, bryozoan, coralline algae and kelp communities. Smothering and siltation rate changes can negatively impact largely sessile organisms as they are unable to avoid deposition. Small organisms are also vulnerable to hindered respiration. If the deposited sediment is cleared rapidly, associated faunal communities can recover. 'Bedrock Reef' habitats, particularly in this area, experience very strong to moderately strong tidal streams, meaning sediment is likely to be removed quickly. In addition, many species are tolerant of periodic smothering as this can be a common occurrence in bedrock habitats (Holme & Wilson, 1985). 'Bedrock Reef' habitats are assessed as not sensitive or low sensitivity, with high resilience (Stamp, Burdett & Tyler-Walters, 2023). As smothering events are likely to have a small impact area and will be restricted in duration, the impact will not be significant.

The Annex I 'Stony Reef' biotopes have no or low sensitivity to smothering. This is dependent on the level of smothering and siltation rate changes. In this case, smothering is likely to be light and is unlikely to damage epifauna, however it could negatively impact recruitment processes (Moy & Christie, 2012). Smothering is only likely to impact the upper faces of reef. In addition, 'Stony Reef'

habitats are often exposed to moderately strong tidal streams and so deposited sediment is unlikely to remain for more than a few tidal cycles (MarLIN, 2025). The impact of smothering and siltation rate changes is therefore not significant.

Kelp species found in the PMF 'Kelp Beds' are unlikely to be damaged by smothering and siltation rate changes. This pressure, however, can impact gametophyte survival, zoospore settlement and holdfast fauna associated with these biotopes (Stamp *et al.,* 2023). If smothering occurs as a discrete event, kelp gametophytes can normally resume growth within a month (Dieck, 1993). In addition, if the deposited sediment is cleared rapidly, associated faunal communities can recover. Habitats that are classed as 'Kelp Beds' are often high to moderate energy habitats, so sediment is unlikely to remain for more than a few tidal cycles. 'Kelp Bed' habitats are assessed as not sensitive with high resilience to this pressure (Stamp, Burdett & Tyler-Walters, 2023). As smothering events are likely to have a small impact area and will be restricted in duration, the impact will not be significant.

The PMF 'Kelp and Seaweed Communities on Sublittoral Sediment' is assessed as having no to low sensitivity to smothering and siltation rate changes, depending on the level of siltation (FeAST, 2023). If smothering is light, mature kelp and other macroalgae are unlikely to be damaged. However, recruitment could be negatively impacted (Moy & Christie, 2012). This habitat is exposed to moderately strong tidal streams and deposited sediment is unlikely to remain for more than a few tidal cycles (MarLIN, 2025). As smothering events are likely to have a small impact area and will be restricted to short temporal events, the impact on this habitat will not be significant.

The PMF 'Seagrass Beds' is assessed as having high sensitivity to smothering and siltation rate changes. Seagrasses are intolerant of smothering and can be buried in a few centimetres of sediment (Fonseca, 1992). Recoverability can depend on recruitment from other populations. Smothering events, however, are expected to be highly limited with the strong prevailing currents preventing a significant settlement of sediment particles. Therefore, the impact on this habitat by siltation will be slight.

The UK Post-2010 Biodiversity Framework (formally UK BAP) habitat 'Subtidal Sands and Gravels' habitat can be sensitive to smothering and siltation rate changes as these pressures can influence the structure of sedimentary habitats. Species associated with 'Subtidal Sands and Gravels', such as sand eels, are highly susceptible to smothering and siltation due to their dependency on specific substratum for reproduction. Susceptible species such as sand eels were not observed in the surveys of the Installation Corridor. Other mobile species associated with this habitat, such as crabs and starfish are not sensitive to smothering and have recoverability (Budd, 2008). Impacts from sediment disturbance will be localised and restricted to the immediate vicinity of the trench (less than 10m either side (Gooding *et al.,* 2012). Due to the relatively low area of impact in relation to the greater habitat area, the impact on this habitat will not be significant.

8.4.6 Accidental Hydrocarbon or Chemical Release from Installation Vessel

8.4.6.1 Intertidal

At both landfall sites, an excavator will be used to construct a trench between MHWS and MLWS in the intertidal zone. The length of the trench is calculated to be 29.7m at the Coll landfall and 43.2m at the Tiree landfall, with both trenches having a width of 1m. The excavator will work within an approximate 20m corridor, during these trenching operations. The use of an excavator risks potential hydrocarbon or chemical release, as well as any vessel-based releases in the subtidal area of operations which could wash ashore.

Of the sensitive habitats identified along the Installation Corridor, the Annex I habitats 'Yellow and Grey Lichens on Atlantic Supralittoral Rock' (MA1211), 'Coastal Dunes and Sandy Shores' (N1), 'Atlantic, Baltic and Arctic Sand Beach' (N11), '*Semibalanus balanoides*, *Fucus vesiculosus* and Red Seaweeds on Exposed to Moderately Exposed Eulittoral Rock' (MA12232), 'Barren Littoral Coarse Sand' (A2.221) and 'Fucoids on Sheltered Marine Shores' (A1.31) could be affected. 'Fucoids on

Sheltered Marine Shores' (A1.31), of which is listed on the Bern Convention, and dog whelk (*N. lapillus)* individuals, listed as an OSPAR threatened or declining species, could also be affected (OSPAR, 2008).

Several of the characterising species of these habitats are sensitive to hydrocarbon and detergent release while others display less severe effects and damage (Tyler-Walters, 2016). *N. lapillus* individuals, listed by OSPAR, could also be affected (OSPAR, 2008). While *N. lapillus* is more resistant to hydrocarbon release than most gastropods, evidence indicates that populations are affected by hydrocarbon and detergent release. *N. lapillus* was assessed with low sensitivity to this pressure, intermediate intolerance and high recoverability (Tyler-Walters, 2007). Any evidenced effects are related to extensive spills rather than smaller spills that could be expected from installation vessels and detergents are not likely to be used on vessels in high quantities unless a large oil spill clean-up operation is required. 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.

Onshore, in the event of an accidental hydrocarbon release occurring, appropriate standard practice management procedures will be implemented accordingly and a suitable medium used to remove the spill. As referred to in the onshore Construction Environmental Management Plans (CEMPs; PPC018 Tiree Construction Environmental Management Plan 1.1 and PPC018 Coll Construction Environmental Management Plan 1.2), an emergency spill action plan will be followed, including an assessment of the spill, containing the pollution, and safely removing and disposing of the waste. Relevant authorities will be informed and protocols followed, including the use of appropriate PPE, reporting of the incident, and review of the event to prevent recurrence. At sea, as referred to in the offshore CEMP (P2663_R6588_Rev2), control measures and shipboard oil pollution emergency plans (SOPEP) will be in place and adhered to under The International Convention for the Prevention of Pollution from Ships (MARPOL) Annex I requirements for all vessels, preventing the transport of any potential spill to the intertidal area.

8.4.6.2 Subtidal

The use of vessels for cable installation has potential for hydrocarbon and chemical release. The sensitive benthic habitats in the Installation Corridor which could be affected are, Annex I 'Bedrock Reef' and 'Stony Reef', the PMFs 'Kelp Beds', 'Kelp and Seaweed Communities on Sublittoral Sediment' and 'Seagrass Beds' and the UK Post-2010 Biodiversity Framework (formally UK BAP) habitat 'Subtidal Sands and Gravels'. In addition, any releases in the subtidal area of the Installation Corridor can potentially wash to intertidal habitats from offshore vessels.

Vessels likely to be used for cable installation activities include a CLV, boulder removal vessel, DSV, jack-up vessel and other support vessels. The use of such vessels can risk the accidental release of hydrocarbons or chemicals including crude oil, lubrication oil, hydraulic fluid, corrosion inhibitors, control fluid, diesel, fuel and gas oils (ACOPS, 2017). For the use of rock anchors, required for cable stability in some areas, a marine grade resin is proposed.

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. All project vessels will be legally required to adhere to MARPOL Annex I requirements, and the Sea Pollution Acts, which prohibit the discharge of waste and other pollutants, and require the secure storage of fuels and other materials on board.

The marine grade resin used for rock anchors will be used in only small quantities for the placement of 20mm threaded bars at up to 20 locations. The product used will be regulated for marine used and therefore not contain substances which could be detrimental or have long lasting impacts in the marine environment.

Annex I 'Bedrock Reef' and 'Stony Reef' are sensitive to hydrocarbon and chemical releases. Hydrocarbon release is mainly related to surface waters, and any impact of subtidal turf communities is likely to be limited (Hartnoll, 1998). However, high swell and winds can lead to hydrocarbon mixing with seawater and subsequent impacts on subtidal habitats (Castège *et al.,* 2014). In addition, there

have been reports of increases in developmental abnormalities in common taxa such as echinoderms following the release of detergents and oil into the marine environment (Smith, 1968). These effects are related to extensive spills rather than smaller spills that could be expected from installation vessels and detergents are not likely to be used on vessels in high quantities.

The PMF 'Kelp Beds' is often composed of kelp species and red macroalgae. Kelp in this Installation Corridor are unlikely to come into contact with freshly released oil as they are subtidal and the mucilaginous slime layer found on kelp can protect them from smothering by hydrocarbon release (Birkett *et al.,* 1998). Previous hydrocarbon release events have shown little impact on kelp species post event (Rostron & Bunker, 1997). Red algae, often found in biotopes of this PMF, is sensitive to hydrocarbon contamination with evidence of reduced species richness and diversity of the habitat. However, the habitat has been shown to recover quickly (Stamp, Burdett & Tyler-Walters, 2023). 'Kelp Beds' are sensitive to chemical release; however, these effects are related to extensive spills rather than small spills expected from installation vessels.

The PMF 'Kelp and Seaweed Communities on Sublittoral Sediment' is sensitive to the release of hydrocarbons or chemicals, and the large surface area that seaweeds occupy can exacerbates this sensitivity (FeAST, 2023). These effects, however, are related to extensive spills rather than small spills from installation vessels.

There is not sufficient information available to complete a sensitivity assessment of 'Seagrass Beds'. However, due to concern over potential impacts, the PMF has been deemed sensitive to the release of hydrocarbons or chemicals from vessels (FeAST, 2023).

The UK Post-2010 Biodiversity Framework (formally UK BAP) habitat 'Subtidal Sands and Gravels' is sensitive to hydrocarbon contamination and there is evidence that this habitat is sensitive to oil exploration, leakages and shipping accidents that lead to localised pollution of sediment organisms such as anemones, polychaetes, bivalves, amphipods as well as mobile and sessile epifauna. Best practice and compliance to standards, however, provide good levels of protection for all living organisms where standards are adhered to.

Best practice and compliance measures will be in place to minimise the likelihood of any accidental releases and minimise any effect should a release occur. Control measures and shipboard oil pollution emergency plans (SOPEP) will be in place and adhered to under The International Convention for the Prevention of Pollution from Ships (MARPOL) Annex I requirements for all vessels. In the event of an accidental fuel release occurring appropriate standard practice management procedures will be implemented accordingly. Vessels will only be used when necessary and for a relatively short duration of around two weeks. After such mitigation the risk presented is very low and therefore can be seen as acceptable to the project.

8.4.7 Introduction or Spread or Invasive / Non-native Species

8.4.7.1 Intertidal

The Invasive Non-native Species (INNS) seaweed *S. muticum* was identified in the Tiree intertidal survey of the Installation Corridor. *S. muticum* can compete with characteristic macroalgae species of the habitat 'Fucoids on Sheltered Marine Shores' (A1.31), such as *F. vesiculosus*, for light and space (Stæhr *et al*., 2000). None of the remaining sensitive habitats or species observed in the Installation Corridor are likely to be impacted by this (Tillin *et al.,* 2016; Tyler-Walters, 2016; Tillin *et al.,* 2024; MarLIN, 2025). Screening of the area surrounding the Installation Corridor, 40km radius, was also undertaken. No additional INNS were identified (OneBenthic, 2025).

Best practice measures for ballast water management and vessel maintenance will be followed throughout operations, minimising any potential introduction of INNS. Ballast water discharges from vessels will be managed under International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention). The BWM Convention, adopted in 2004, aims

to prevent the spread of harmful aquatic organisms from one region to another, by establishing standards and procedures for the management and control of ships' ballast water and sediments.

8.4.7.2 Subtidal

No INNS were identified in the subtidal survey of the Installation Corridor. Screening of the area surrounding the Installation Corridor, 40km radius, was also undertaken. No additional INNS were identified (OneBenthic, 2025).

Best practice measures for ballast water management and vessel maintenance will be followed throughout operations, minimising any potential Introduction of INNS. Ballast water discharges from vessels will be managed under International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention). The BWM Convention, adopted in 2004, aims to prevent the spread of harmful aquatic organisms from one region to another, by establishing standards and procedures for the management and control of ships' ballast water and sediments.

8.5 Mitigation

Mitigation measures that are embedded in the project design are listed in Table 4-1. Following assessment, there are no additional mitigation measures proposed.

8.6 Conclusion

The above assessment has demonstrated that installation, operation and decommissioning activities associated with the cable replacement will not significantly affect the benthic subtidal and intertidal ecology in terms of the spatial extent at which environmentally sensitive habitats were recorded. Any impacts of cable installation on the habitats and species within the Installation Corridor will be temporary and habitat loss will be localised. Micro-routing of the installation corridor will be undertaken to (where possible) avoid sensitive habitats and species to ensure they are not significantly affected by the installation activities. Cable installation activities will be short term, and the footprint spatially small, relative to the extent of the surrounding benthic environment. Cable protection measures will be used in some areas to ensure cable protection and stability as well as reducing abrasion impacts. The footprint of the deposits will be the minimum required to ensure cable safety and stability.

9. ORNITHOLOGY

9.1 Introduction

This section outlines the ornithological interests within the Application Corridor, outlines the impacts associated with the cable installation activities on bird species and presents the findings of the environmental assessment.

The general ornithological features within/in the vicinity of the Application Corridor are described in the separate EPS and Protected Sites and Species Risk Assessment for the Argyll geographical area (Xodus 2023) (Appendix C). As such, this section discusses only the receptors sensitive to the installation operations and Special Protection Areas (SPAs) that overlap with the Application Corridor. Impacts to any SPA overlapping the Application Corridor are assessed in full in Chapter 5 "Protected Sites". The following impact assessment thus focuses solely on ornithological receptors identified as having a specific sensitivity to the proposed operation.

9.2 Data Sources

The baseline has been informed using the following sources:

- European Protected Species (EPS) and Protected Sites and Species Risk Assessment - Argyll (Appendix C)
- Coll to Tiree Submarine Power Cable Desktop Environmental Report (WSP, 2023)
- Coll to Tiree Cable Route Desktop Study (OceanIQ, 2023)

In order to establish baseline conditions a desktop review of published information has been undertaken supported by consultation with relevant bodies. Consultations completed as part of this application are summarised in Section 1.5. Any other data sources used are referenced throughout the document.

9.3 Ornithology Description

The coastline of western Scotland is important for a wide range of nationally and internationally important bird populations, acting as both breeding sites and foraging areas (Xodus, 2023). The cliffs and island habitat are vital for seabird populations and the Isle of Coll is an important stopover and wintering area for arctic breeding species such as pink-footed goose and purple sandpiper (Birding Place, 2022a). Coll is also known to provide a vital breeding area for twaite, hen harrier and merlin (Birding Place, 2022a). Seabird populations on the Isle of Tiree are also prolific and the Isle is known to support over 130 bird species including waders such as spotted redshank, dotterel, common greenshank and common sandpiper, and breeding bird populations including common guillemot, razorbill, northern fulmar, kittiwake and European shag (Birding Place, 2022b). The habitat on Tiree is also known to support Lapland bunting, snow bunting, short-eared owl and grasshopper warbler (Birding Place, 2022b). The isles of Coll and Tiree provide a breeding ground for corncrake and one third of the UK population of the species is known to inhabit the isles (Birding Place, 2022a).

The Skerry Islands around the coast of Tiree provide suitable habitat for breeding terns, the closest is located around 120 to 170m from the Tiree end of the application corridor (Bowler, 2014). In Scotland, all tern species have experienced population declines over the past 60 years. The latest Birds of Conservation Concern added Arctic Tern (*Sterna paradisaea*) to the Red List due to severe declines of 50% in the last 25 years. The last national Seabirds Count (2015–2021) found less than 230 pairs of Little Tern (*Sternula albifrons*) breeding in Scotland on a small number of island and coastal sites. Common Terns (*Sterna Hirundo*) are widely distributed around the UK and overall their population is stable, but in Scotland, many small colonies have disappeared, resulting in a decline of

24% since 2000. Arctic Terns are most frequently identified, in this region, around summer time, migrating south during winter months. Terns are not designated in this region as part of a NCMPA network. While conservation initiatives, such as the 'Terning the Tide' project (Bowler, 2014), aim to support tern populations through habitat management and protection measures, the lack of formal designation in this area leaves these colonies vulnerable to environmental pressures and human disturbance.

As described in Section 5 “Protected Sites”, the Application Corridor overlaps the Coll and Tiree SPA and Sleibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast) SPA. The Coll and Tiree SPA is designated for non-breeding populations of common eider (*Somateria mollissima*) and great northern diver (*Gavia immer*), and the Sleibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast) SPA is designated to protect breeding populations of wading bird species including dunlin (*Calidris alpina schinzii*), oystercatcher (*Haematopus ostralegus*), redshank (*Tringa totanus*) and ringed plover (*Charadrius hiaticula*) and non-breeding populations of Greenland barnacle goose (*Branta leucopsis*), Greenland white-fronted goose (*Anser albifrons flavirostris*) and turnstone (*Arenaria interpres*). A thorough assessment of the potential pressures associated with the proposed installation activities on the Coll and Tiree SPA and Sleibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast) SPA is provided in Section 5 “Protected Sites”.

Diving bird species are identified as particularly sensitive to disturbances (Xodus, 2023) and the Application Corridor overlaps the Coll and Tiree SPA designated for two species of diving bird, the common eider and the great northern diver. This designated site protects over 18% of the wintering great norther diver Great Britain (GB) population and 2% of the wintering common eider GB population, though this species commonly remains in the area throughout the breeding season also (NatureScot, 2022). Given that the proposed operations are scheduled to take place in summer and early autumn 2025, it is unlikely for wintering populations of great northern diver to be present within the Application Corridor and as such significant impacts to these species are unlikely. The assessment of effects on great northern diver is therefore considered within Section 5 only. As common eider may remain present within the Application Corridor throughout the year there is potential for their presence during the proposed operations. As such, these species are considered a sensitive receptor and have been taken forward for additional assessment below.

9.4 Impact Assessment

The sensitivity of bird populations to human disturbance varies temporally with birds being most vulnerable when at sea during the moulting season, when they disperse from their coastal colonies to offshore waters and become flightless, spending more time on the sea surface (Xodus, 2023). During these periods the likeliness of interactions with installation vessels and the potential for collision risk increases as well as the sensitivity of species to visual and above water noise disturbance. Further information on the important life-history periods for seabird species is provided in the EPS and Protect Sites and Species Risk Assessment (Appendix C).

Diving bird species are regarded as highly sensitive to vessel traffic disturbance where they have previously been classified as showing strong escape behaviour at a large response distance (Furness *et al*., 2013). Common eider are particularly sensitive to vessel traffic disturbances during their breeding period. In the Hebrides, common eider arrive at breeding grounds in late April where they remain until the end of August (Xodus, 2023). During this period they are at their most sensitive.

Sea users (commercial fisheries, shipping, ferries and others) are likely to be present in the area throughout the year as outlined in Section 13 “Shipping and Navigation”. Therefore, it is not envisaged that vessel presence will constitute a significant change from typical baseline conditions. Given the short term and temporary nature of installation activities in combination with mitigation measures embedded as part of the project design, no adverse effects to general ornithological features within the Application Corridor are expected to occur. However, given that common eider are regarded as

highly sensitive to disturbances (Furness *et al.,* 2013), a full assessment of vessel presence and visual and above water noise disturbance on common eider populations protected within Coll and Tiree SPA has been undertaken.

9.4.1 Vessel Presence

The presence of installation vessels has the potential to disturb ornithological features within the Application Corridor through risk of bird strike. During the operation a maximum of 6 vessels are likely to be utilised. These vessels may pose a collision risk to common eider.

However, common eider are known to flush from vessels within a distance of 200m (Dehnhard *et al*., 2020) and given the slow movement of installation vessels (less than 4 knots) it is expected that the species will have sufficient time to move out of the way of vessels utilised during this operation and as such vessel strike is unlikely. Therefore, no adverse effects to ornithological features as a result of vessel presence are expected to occur.

9.4.2 Visual (and Above Water Noise) Disturbance

During the proposed operation there is likely to be an increase in vessel traffic throughout the Application Corridor including in the nearshore area as well as the presence of installation equipment at the landfalls. This has the potential to disturb populations of common eider.

Common eider are known to be vulnerable to disturbance by boats with boat disturbance being found to lead to a reduction in foraging activity by up to 60% per day (Goodship and Furness, 2022). This disturbance may therefore ultimately lead to a reduction in overall fitness. Given the area of the Coll and Tiree SPA (795km^2) and the area of the Application Corridor (1.332km^2), common eider are expected to only be disturbed from around 0.17% of the available foraging area within the Coll and Tiree SPA.

Furthermore, given the evidence of a high level of tolerance and habituation of common eider to human activity (e.g. pedestrians, aircraft and vessel traffic) (Goodship and Furness, 2022), and the baseline shipping levels in the vicinity of the Application Corridor from vessels transiting to and from Tiree, it is expected that common eider will show a degree of habituation to the vessels involved in this operation. Therefore, given the short-term, localised and temporary nature of the installation activities any disturbances will be temporary, with operations estimated to take 70 days. Any disturbances are likely to be minimal and species are expected to return to utilised foraging areas upon completion of the operational works, with evidence of common eider returning to pre-disturbance behaviour within 10 minutes of the cessation of a disturbance event (Goodship and Furness, 2022). Therefore, no adverse effects to ornithological features as a result of visual (and above water) noise disturbance are expected to occur.

9.5 Mitigation Measures

Mitigation measures that are embedded in the project design are listed in Table 4-1. Following assessment, there are no additional mitigation measures proposed.

9.6 Conclusion

The above assessment has demonstrated that although common eider within the Application Corridor may experience a slight disruption to their foraging activities during the Coll - Tiree cable installation, this will be temporary with the species expected to return to normal foraging behaviour immediately after disturbing activity has ceased. Therefore, given the short-term, localised and temporary nature of the installation activities, there are unlikely to be any adverse effects to common eider as a consequence of the planned installation activities.

10. MARINE ARCHAEOLOGY

10.1 Introduction

This section describes the key characteristics of the marine historic environment along the Application Corridor and provides an assessment of potential impacts of the installation activities on marine archaeology, presents the findings of the environmental assessment along with the mitigation and management measures to remove or reduce the effect of any identified pressures.

10.2 Data Sources

A review of publicly available information on marine archaeological sites in the vicinity of the Application Corridor was conducted to inform this assessment. Key data sources used included:

- The United Kingdom Hydrographic Office (UKHO) wrecks database, containing recorded wreck and obstruction data.
- Statutory lists, registers and designated areas, including Lists of Scheduled Monuments, Designated Wrecks and Historic Marine Protected Areas (HMPAs).
- The National Record of the Historic Environment (NRHE) of Scotland, using the Canmore database website (https://canmore.org.uk/).

This information has been supplemented with Historic Environment Records (HER) containing a database of recorded archaeological sites, find spots, and archaeological events; and other publicly available website databases and publications, where used, are cited in the text.

10.3 Marine Archaeology Description

Marine archaeology encompasses not only shipwrecks, but also other evidence of human exploitation of maritime resources, such as shipyards, piers, fish traps, anchor sites and submerged landscapes where human beings and early hominids previously lived or hunted on terrain which was at that time dry land, or where they exploited fish and shellfish on the coast which is now submerged (Marine (Scotland) Act 2010, Section 73, Paragraph 5).

The Application Corridor is situated within Gunna Sound. Notable archaeological findings within and in the vicinity of the Application Corridor are presented in Figure 10-1 (Drawing reference: P2663K-ARCH-001). The Application Corridor overlaps a known wreck at the Tiree landfall. The vessel, known as Eriskaig, was wrecked in 1927 following a fire in Caolas harbour and had no specified cargo. In addition, there are five chartered wrecks present within 500m of the cable route. These are detailed in Table 10-1.

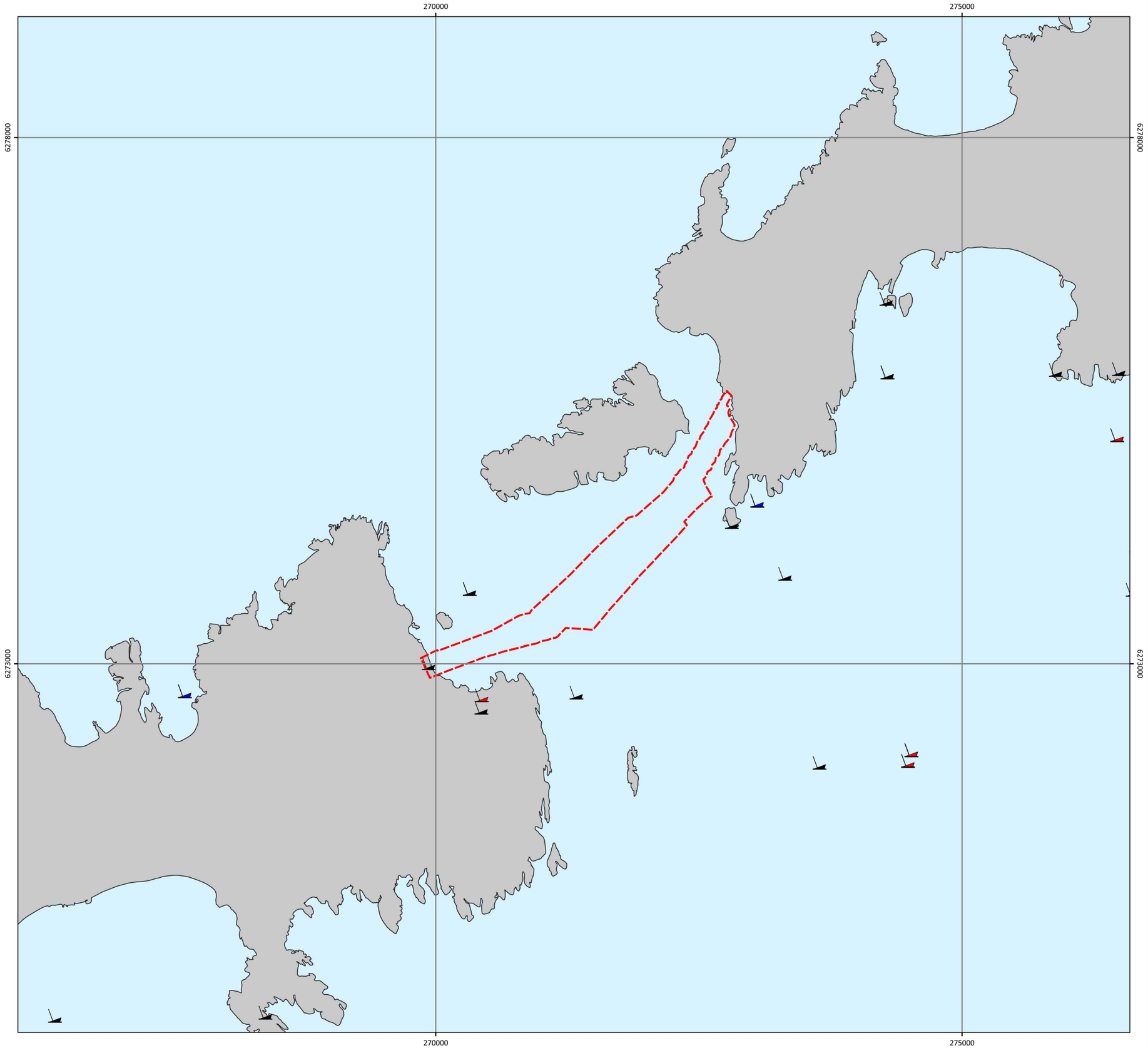
Table 10-1 Known Marine Archaeological Assets Located in the Vicinity of the Application Corridor

Name	Water Depth (m)	Latitude (WGS84 UTM29N)	Longitude (WGS84 UTM29N)	Distance to Application Corridor (km)
Unknown	Unknown	56 32.55 N	6 44.057 W	0.33
NESSMORE	Unknown	56 33.622 N	6 41.608 W	0.43
HYAENA: EILEAN BHORAMUIL, COLL, PASSAGE OF TIREE	Unknown	56 33.302N	6 41.499W	0.33

Name	Water Depth (m)	Latitude (WGS84 UTM29N)	Longitude (WGS84 UTM29N)	Distance to Application Corridor (km)
RICHARD THOMSON: GUNNA SOUND, PASSAGE OF TIREE	Unknown	56 33.432N	6 44.116W	0.45
UNKNOWN: ROAN BOGHA, COLL, PASSAGE OF TIREE	Unknown	56 32.283N	6 44.364W	0.42

Source: UKHO – wrecks database, 2024

The occurrence of sites with marine archaeological significance (such as drifted debris) within the Application Corridor is thought to be unlikely given the data available.



COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

ARCHAEOLOGY

Wrecks surrounding the Application Corridor

Drawing No: P2663K-ARCH-001 | A

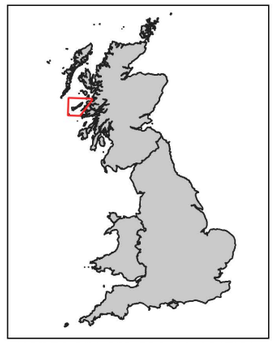
Legend

Application Corridor

Wrecks

- Dangerous Wreck
- Wreck Showing any Portion of Hull or Superstructure
- Other Wrecks

N



NOT TO BE USED FOR NAVIGATION

Date	2025-01-16 16:10:58
Coordinate System	WGS 84 / UTM zone 30N
WKID	EPSG:32630
Scale @A3	1:40,000
Data Sources	OS; UKHO; ESRI
File Reference	J:\P2663\P2663K\Mxd_QGZ\09_ARCH \P2663K-Arch.qgz
Created By	Rosie Wilson
Reviewed By	Lewis Castle
Approved By	Aodhfin Coyle

Scottish & Southern Electricity Networks

intertek metoc

0 0.6 1.2 1.8 2.4 km

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10.4 Impact Assessment

Geophysical and benthic surveys did not identify any wrecks or debris on the seabed within the Application Corridor, however there is one known wreck present within the Application Corridor and a further five wrecks identified within 500m. It therefore cannot be ruled out that the installation of the distribution cable may have the potential to cause damage to historic archaeological artefacts. The potential for damage to occur is limited to cable lay operations, if damage were to occur to a maritime artefact during cable lay operations, this damage would be permanent and there would be no ability to recover, which would cause the impact on historic records to be significant.

10.4.1 Abrasion/Disturbance at the Surface of the Substratum

The proposed replacement cable will be surface laid for the whole marine route, with the exception of the intertidal area. As the surface lay and cable stabilisation deposits may cause abrasion or disturbance of the substrate at the surface, there is the potential this could lead to damage of archaeological artefacts in contact with the cable or deposits. Cable installation, trench back filling and stabilisation methods in the intertidal area have the potential to cause direct damage to sites of marine cultural heritage through compression, notably the Eriskaig wreck located within the Application Corridor. However as part of project design the routing of the cable and location of construction footprints have been planned as such to avoid known cultural heritage sites.

As the cable will be majority surface laid (excluding planned burial at the landfall sites), the installation activities will not result in significant levels of sediment resuspension. Therefore, effects from offshore sedimentation have been screened out and the archaeological assessment focuses on the potential impacts caused by the surface lay of the cable, potential deployment of the jack-up vessel, deposit of stabilisation material and burial activity in the intertidal area.

There is the potential for suspended sediment to be disturbed during installation activities and settle over known artefacts, however this is considered unlikely to damage the artefacts. Therefore, no adverse effects to archaeological features as a result of abrasion or disturbance at the surface of the substratum are expected to occur.

Geophysical survey works have been undertaken to inform the cable route design. However, as detailed in the Project Description (Appendix A) and Section 4.2, a pre-lay survey will be undertaken as a final check of the cable route for archaeological features and debris.

10.4.2 Penetration and/or Disturbance of the Substrate Below the Surface of the Seabed, Including Abrasion

During installation, interaction with known and unknown archaeological features or artefacts on the seabed or intertidal area could be caused by activities resulting in the removal of marine material from the intertidal area. Cable trenching activities at landfalls or the deployment of mooring spreads and jack-up vessels, if required, could have the potential to interact with archaeological artefacts below the surface, if present, due to the penetration of the seabed surface. During installation activities at the Tiree landfall impacts from the disturbance of the seabed surface have the potential to result in the damage and destruction of cultural heritage such as the Eriskaig wreck located within the Application Corridor.

10.5 Mitigation

Mitigation measures that are embedded in the Project design are listed in Table 4-1. Following assessment, there are no additional mitigation measures proposed.

The pre lay survey will allow for any potential wrecks (and any other potential sites of archaeological significance) not identified during the route design to be identified prior to any cable installation works

starting. In addition, the following measures were implemented during the route design process to further ensure the protection of marine archaeological receptors.

- All wrecks or features of archaeological significance will be avoided by a buffer of ≥50 m during detailed route design;
- The locations of wrecks and features of archaeological significance will be identified on electronic charts onboard the installation vessel and will be utilised to guide installation operations;
- The locations of any wrecks or features of archaeological significance will be provided to Historic Environment Scotland and the UKHO; and
- If required by licence, The Crown Estate's 'Protocol for Archaeological Discoveries' (PAD) (The Crown Estate, 2021) will be implemented during installation works.

It is acknowledged that there is the potential that archaeological features could still be present within the Application Corridor, which are not identified by preconstruction surveys. In order to account for this, and subject to further discussion with Historic Environment Scotland, the Crown Estate's PAD (The Crown Estate, 2021) could be used as a basis for further mitigation during installation activities. The role of the Implementation Service described within the above protocol would be replaced by an archaeological service provider appointed by SHEPD or their installation contractor.

10.6 Conclusion

There is one known archaeological feature located within the Application Corridor and a further five features located within 500m of the Application Corridor. Although damaging impacts to the Eriskaig wreck have the potential to occur during installation activities at the Tiree landfall, these will be mitigated where possible through careful project design and the above assessment has concluded that impacts to known archaeological features in the vicinity of the Application Corridor are not likely. Therefore, the installation and operation of the Coll - Tiree cable is not expected to result in any significant affects to the marine archaeology in the vicinity of the Application Corridor.

11. COMMERCIAL FISHERIES AND OTHER SEA USERS

11.1 Introduction

This section provides details of commercial fishing and aquaculture activity within the vicinity of the Application Corridor. Other sea users in the region, excluding shipping and navigation are also reviewed (see Section 13 for Shipping and Navigation). Potential impacts to these receptors have been assessed, along with the mitigation and management measures utilised to remove or reduce any potential impacts or risks. This section should be read in conjunction with the separate regional FLMAP – Argyll (Appendix B) which provides a summary assessment of all the potential marine interactions, including commercial fisheries, which could influence or be affected by the proposed cable installation works.

11.2 Data Sources

Prior to commencement of any works on the Project, a FLMAP was prepared to set out how SHEPD will interact with all legitimate sea users, prior to and during any operational activities associated with the Coll to Tiree cable. This information has been used to inform the baseline overview of this Section, with assessment findings being summarised as well.

The section has been further supplemented by data sources used to inform the baseline description and assessment including but not limited to the following:

- Coll to Tiree Submarine Power Cable Desktop Environmental Report (WSP, 2023);
- Coll to Tiree Cable Route Desktop Study (OceanIQ, 2023);
- Scottish Sea Fisheries Statistics 2023, (Scottish Government, 2024);
- AIS data, European Marine Observation and Data Network (EMODnet) (2024); and
- Any other data sources used are referenced throughout the document.

11.3 Commercial Fisheries and Other Sea Users Description

11.3.1 Commercial Fisheries

11.3.1.1 Fish and shellfish

The oceanic characteristics in the Gunna Sound make the area a prime spawning and/or nursery ground for a number of commercially important species. The installation is scheduled to take place between summer and early autumn of 2025 thus overlapping with the spawning and nursing periods of 12 fish and shellfish species (Table 11-1 and Figures 11-1 to 11-4, Drawing reference: P2663K-FISH-002 - 005).

Table 11-1 Summary of Spawning and Nursery Periods for Commercially Important Fish Species within the Application Corridor

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Scheduled installation												
Anglerfish (N)												
Atlantic Cod (N)												
Atlantic Herring (N)												
European hake (N)												
Atlantic mackerel (N)												
Nephrops (SN)												
Sandeel (N)												
Spotted ray (N)												
Whiting (N)												
Ling												
Plaice												
Spurdog	Viviparous species (gravid females can be found all year)											
Key	S = Spawning			N = Nursery			SN = Spawning and Nursery			Blank = No data		

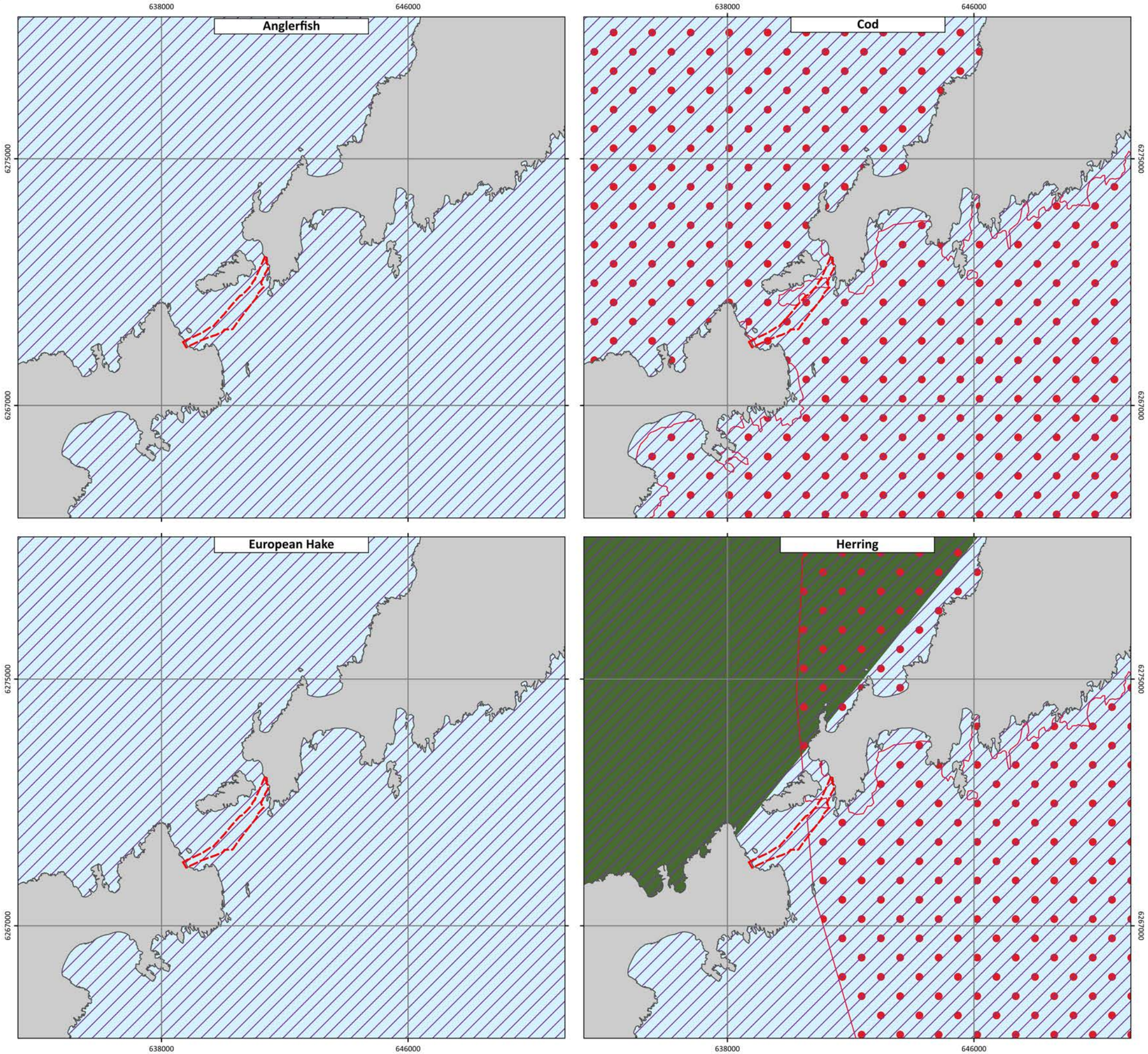
Source: Coull *et al.*, 1998; Ellis *et al.*, 2012

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

FISH AND FISHING ACTIVITIES

Fish Spawning and Nursery Areas (Sheet 1 of 4)

Drawing No: P2663K-FISH-002 | B



Legend

- Application Corridor

Nursery and Spawning Grounds

- UK Nursery Grounds (2010)
- UK Nursery Grounds (1998)
- UK Spawning Grounds (1998)
- UK Spawning Grounds (2010)

N

NOT TO BE USED FOR NAVIGATION

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Created By	Lewis Castle
Reviewed By	Lewis Castle
Approved By	Aodhfin Coyle

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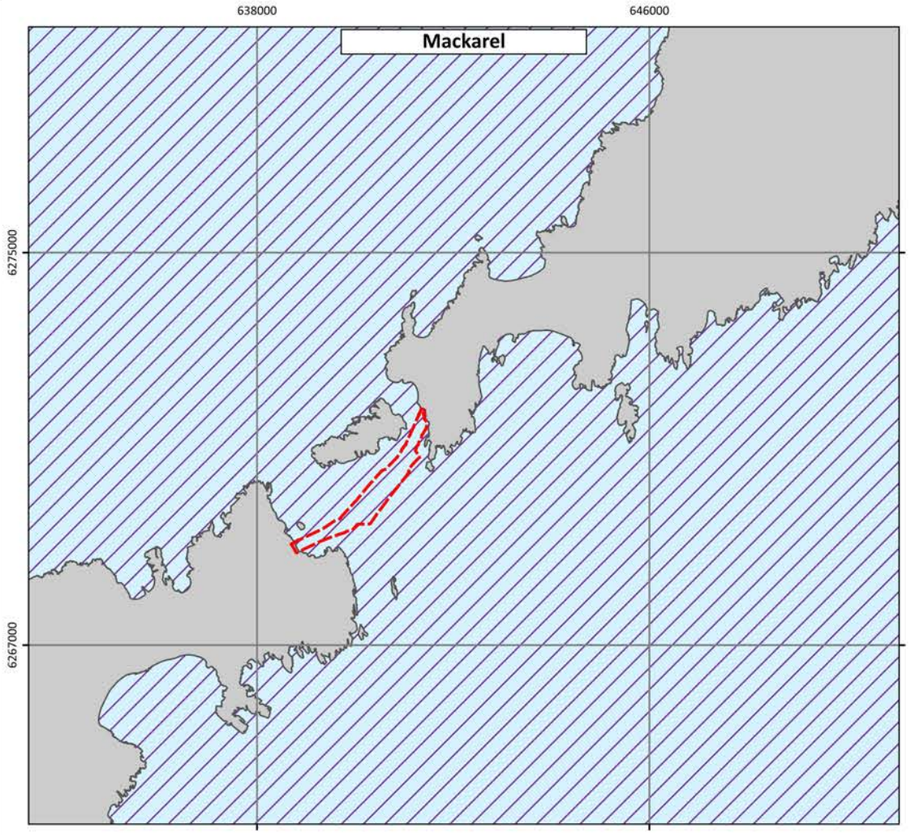

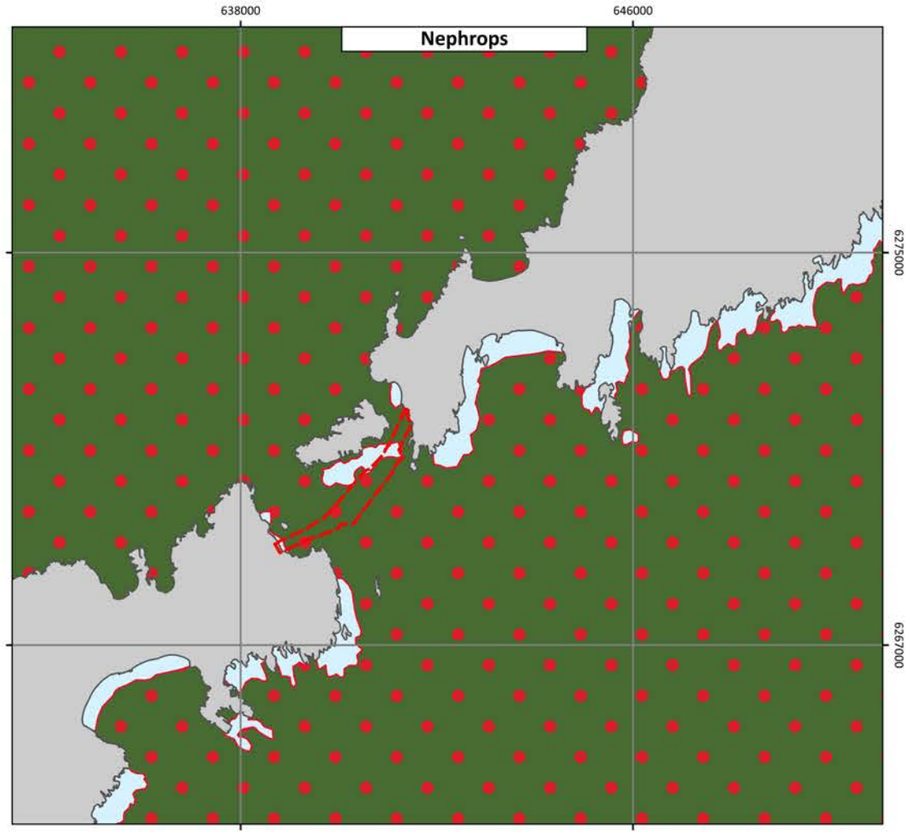

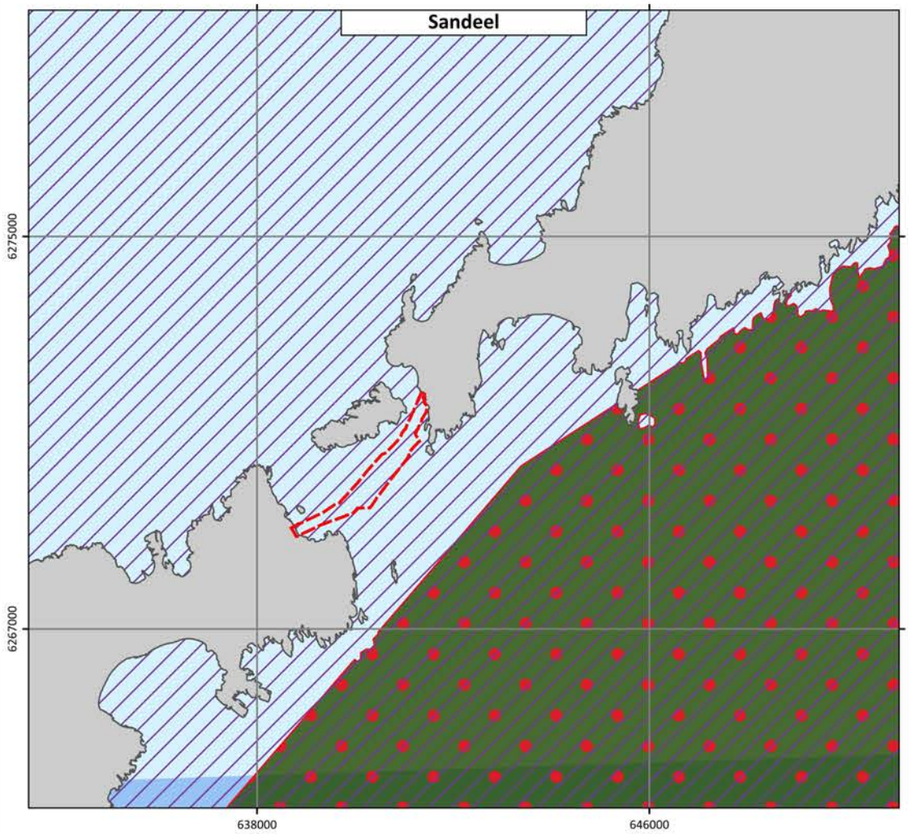

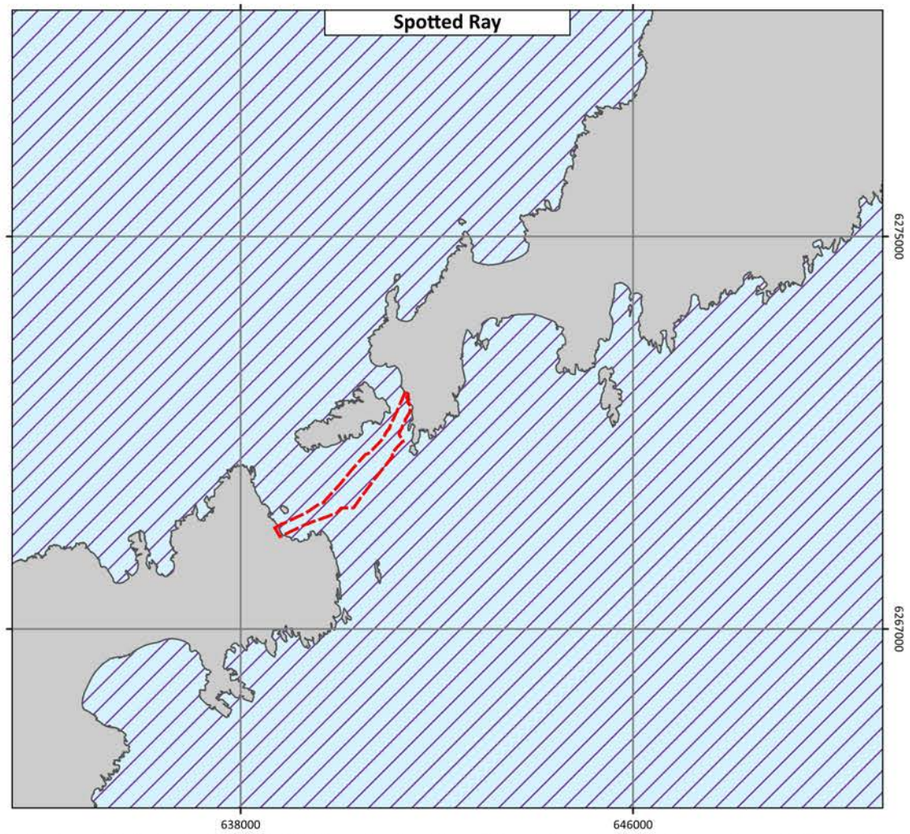

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

FISH AND FISHING ACTIVITIES

Fish Spawning and Nursery Areas (Sheet 2 of 4)

Drawing No: P2663K-FISH-003 | B

Legend

Application Corridor

Nursery and Spawning Grounds

- UK Nursery Grounds (2010)
- UK Nursery Grounds (1998)
- UK Spawning Grounds (1998)
- UK Spawning Grounds (2010)

N

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Created By	Lewis Castle
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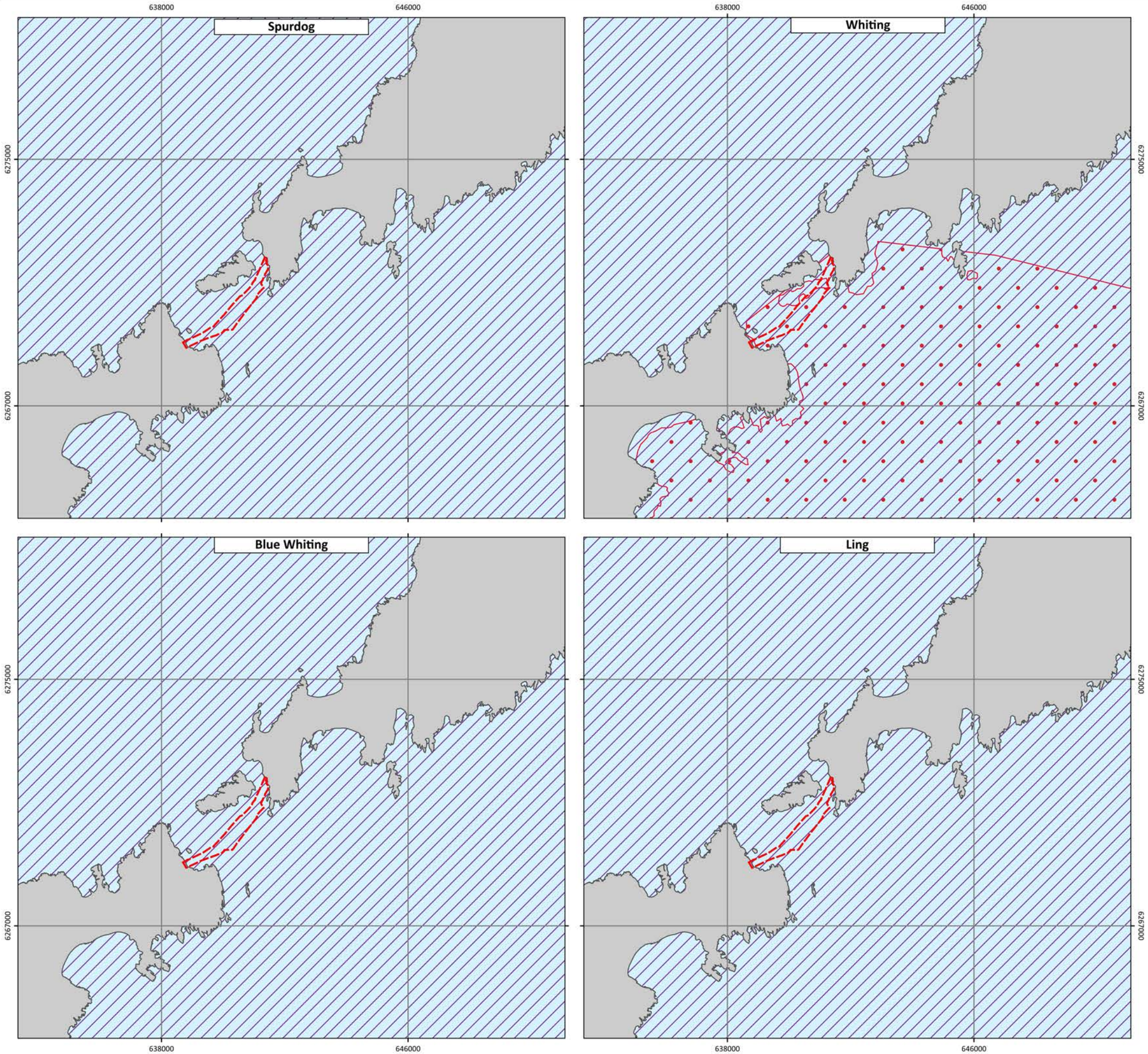

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

FISH AND FISHING ACTIVITIES

Fish Spawning and Nursery Areas (Sheet 3 of 4)

Drawing No: P2663K-FISH-004 | B

Legend

Application Corridor

Nursery and Spawning Grounds

- UK Nursery Grounds (2010)
- UK Nursery Grounds (1998)
- UK Spawning Grounds (1998)
- UK Spawning Grounds (2010)

N

NOT TO BE USED FOR NAVIGATION

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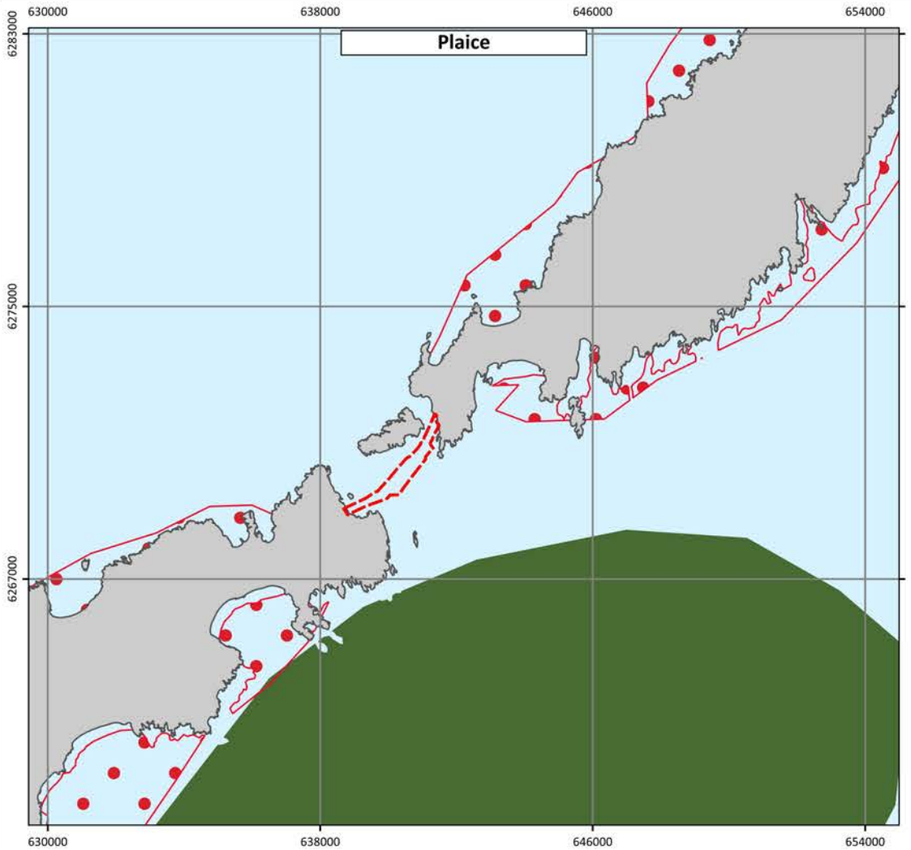

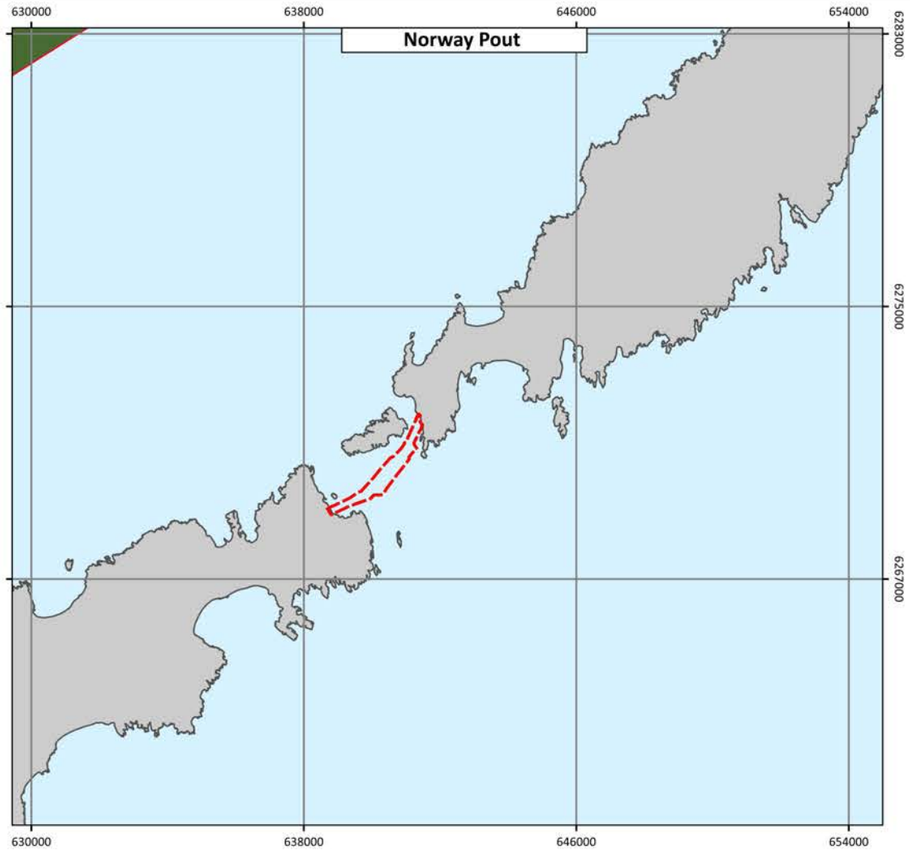

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

FISH AND FISHING ACTIVITIES

Fish Spawning and Nursery Areas (Sheet 4 of 4)

Drawing No: P2663K-FISH-005 | B

Legend

Application Corridor

Nursery and Spawning Grounds

- UK Nursery Grounds (2010)
- UK Nursery Grounds (1998)
- UK Spawning Grounds (1998)
- UK Spawning Grounds (2010)

N

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Created By	Lewis Castle
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11.3.1.2 Fisheries activity

The west coast of Scotland is located in the International Council for Exploration of the Seas (ICES) "Celtic Seas" ecoregion, further defined as ICES Division 6a. This Division is used in ICES stock assessments and management advice, so has an ecological basis.

The Application Corridor is located within ICES rectangle 42E3. This rectangle is in an area predominantly targeted for shellfish species with this sector typically being the most valuable in terms of £ per tonne (Table 11-2). In the region crab (*Cancer pagurus*), Norway lobster (*Nephrops norvegicus*), scallops (*Pectinidae*), razor clam (*Siliqua patula*) and ballan wrasse (*Labrus bergylta*) are the top five highest value catch (The Scottish Government, 2024). In terms of gear type, the most commonly used in ICES rectangle 42E3 are pots (creels) and traps, demersal trawls/seines and dredges (Appendix B - FLMAP). However, it is noted in the cable route desk top study that no static gear fishing activity was recorded in the Application Corridor between 2015 and 2018 (OceanIQ, 2023).

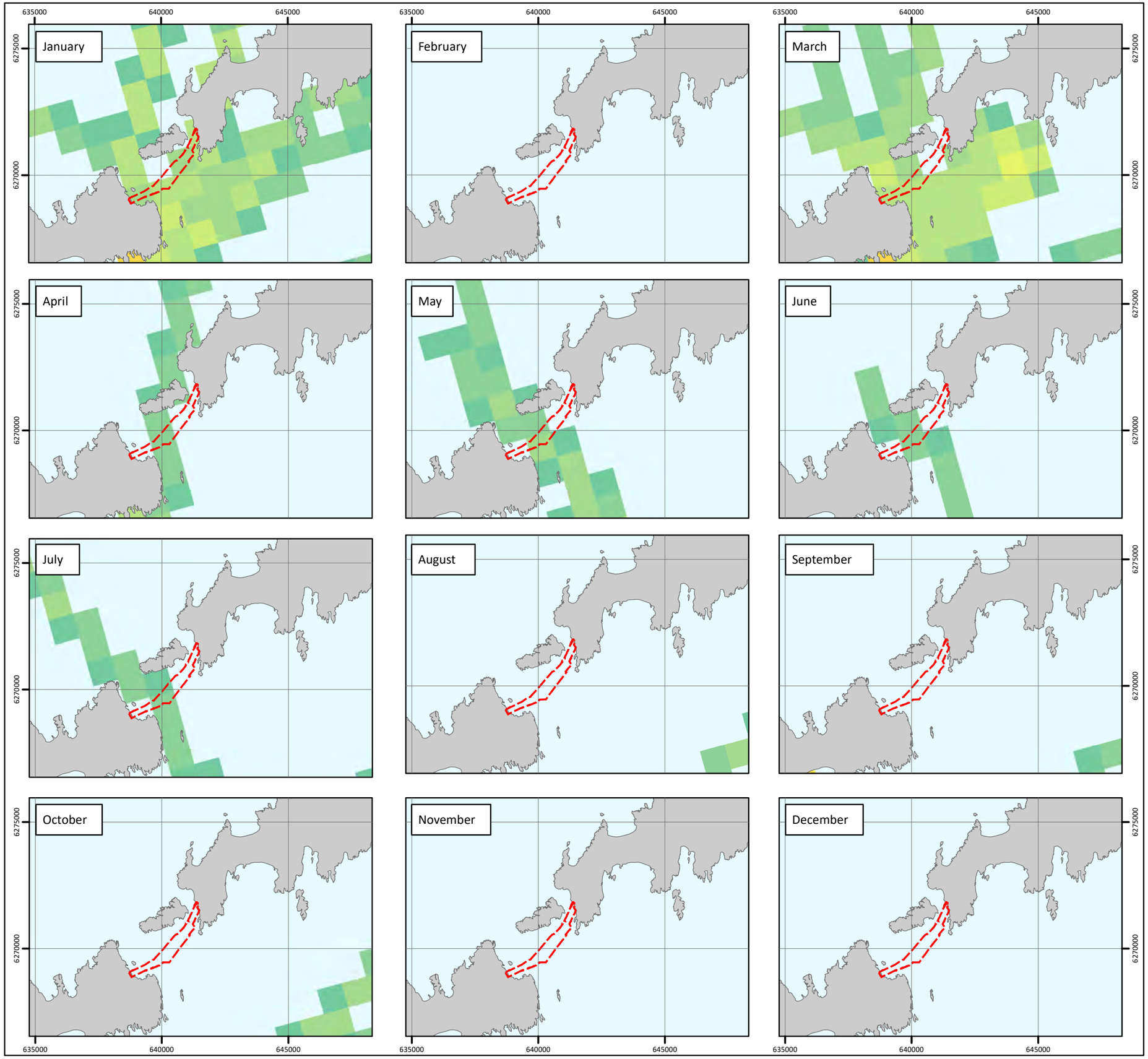
Table 11-2 Fishing Landed Quantity and Relative Value for Rectangle 42E3

Year	Quantity (tonnes)			Value (£)		
	Demersal	Pelagic	Shellfish	Demersal	Pelagic	Shellfish
2019	57	281	1,201	184,217	78,962	4,155,362
2020	32	77	1,045	1,016,787	23,516	2,633,303
2021	26	-	1,254	76,680	-	3,451,241
2022	50	-	949	197,827	-	3,424,701
2023	39	0.28	1,352	471,015	6	4,943,373

Source: The Scottish Government, 2024

11.3.1.3 Fisheries density

The Application Corridor is a relatively low-density fishing area for local fishers within the region. Figure 11-4 (Drawing reference. P2663K1-AIS-002) shows the monthly fishing vessel density within the vicinity of the Application Corridor in 2023. The fishing density remains moderate throughout the year. The majority of vessels tend to operate in the southern part of the Application Corridor.



COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

AIS VESSEL DENSITY

Monthly Vessel Densities (2023) Fishing Vessels

Drawing No: P2663K-AIS-002 | **B**

Legend

Application Corridor

2023 Vessel Density

Vessel Hours (per km²)

- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.2
- 0.2 - 0.5
- 0.5 - 1
- 1 - 2
- 2 - 5
- 5 - 10
- 10 - 20
- 20 - 50
- 50 - 100
- 100 - 200
- 200 - 500
- > 500

N W E S

NOTE: Not to be used for Navigation

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Datum	WGS 1984
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Created By	Rosie Wilson
Reviewed By	Emma Langley
Approved By	Aodhfin Coyle

0 2.5 5 7.5 10 km

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11.3.2 Aquaculture

There are no aquaculture sites located within the Application Corridor. The closest active aquaculture site is the Gott Bay shellfish aquaculture site located approximately 6km southwest of the Application Corridor.

11.3.3 Recreational Sea Users

As discussed in the FLMAP (Appendix B), there are very low to low levels of recreational activity within the Application Corridor including power boating (low levels at the Tiree landfall but moderate at the Coll landfall), canoeing and kayaking, motor cruising, sailing and cruising, chartered angling, yacht and dinghy racing, coasteering and wild fowling. The Tiree Wave Classic is a professional windsurfing event that takes place in Tiree, the event is scheduled 11th to 17th October 2025 and that the timing of the works being proposed so no overlap between the works and this competition will take place. There are moderate levels of scuba diving activity directly over the Application Corridor. There are no RYA clubs or training centres within the vicinity of the Application Corridor.

11.3.4 Military Areas

The Application Corridor is located within two Military Practise and Exercise Areas (PEXAs), named X5646 Tiree and X5627 Staffa. Both of these PEXAs are used for submarine exercises. During construction, there is potential for minor disruption to these military vessels, however with ongoing communication and publishing of Notice to Mariners (NtM) the coordination of any potential conflicting activities will be managed.

11.4 Potential Impacts

Potential impacts to commercial fisheries and other sea users in the vicinity of the Application Corridor may arise due to:

- Loss of fishing ground;
- Loss of fishing gear and increased snagging risk; and
- Disruption to Military vessels

11.4.1 Loss of Fishing Ground

There is potential for the presence of installation vessels to restrict access to fishing grounds or to cause fishing vessels to deviate from their typical navigation route, resulting in a loss of earnings, additional fuel costs or disruption of normal fishing activities. Longer term impacts relate specifically to reduced fishing effort within traditional fishing grounds, particularly for trawl fisheries where there is an increased risk of gear being snagged on the replacement cable and associated protection measures (e.g. rock bags and concrete mattresses) – see Section 11.4.2.

Regarding the immediate loss of access to fishing grounds and navigation routes due to the presence of installation vessels, the impacts relate to the 500 metre (m) safety zone that will be enforced around the installation vessel when in operation. When the installation schedule for the cable is finalised, this will be circulated amongst local fishers ahead of the activities to provide as much notice as possible, allowing for temporary changes in routing to be made. Due to the linear nature of the cable installation route and transient nature of the 500m safety zone however, the duration of time where fishing vessels will be displaced will be minimal. As such, pressures resulting from the loss of access to commercial fisheries and other sea users are not expected to be significant.

11.4.2 Loss of Fishing Gear and Increased Snagging Risk

The most popular fishing gear used in the vicinity of the Application Corridor pots (creels) and traps, demersal trawls/seines and dredges (see Section 11.3.1.2). This gear is all commonly used to target benthic species and as such snagging risks resulting from the cable or the stabilisation measures are possible. Based on these observations, there is the potential for interaction between the cable and these types of fisheries activities. However, fisheries activity within the Application Corridor is reported to be low and as such impacts are expected to be minimal. While static gear may be present in the Application Corridor, there was no recorded static gear fishing activity between 2015 and 2018 and the risk of interaction between static gear and the cable installation operation is low (OceanIQ, 2023).

While occasional maintenance of the cable may occur in the future, such activities will be clearly communicated ahead of time with typical safety procedures (such as those used in this Project) being followed, thus ensuring impacts to local fishermen are kept to a minimum.

11.4.3 Disruption to Military Vessels

The Application Corridor is located within two PEXAs for submarines as outlined in Section 11.3.4. During construction, there is potential for minor disruption to these military vessels, however ongoing communication and publishing of NtM will ensure coordination of any potential conflicting activities. As such, pressures resulting from disruption to access of military vessels and other sea users are not expected to be significant.

11.5 Conclusion

The assessment demonstrates that there will be no significant effects to commercial fisheries interests or to other sea users (discussed within the Section) within in or in close proximity to the Application Corridor. Gunna Sound supports nursing and spawning grounds for commercially important fish and shellfish. Whilst fishing activity is low within the Application Corridor, the evident use of mobile fishing gear indicated a snagging risk from the installation of the cable or stabilisation material. However, due to the small seabed footprint of the cable once installed, and the wider availability of fishing grounds in the area, this loss of access is considered to be minor. Impacts to static gear fishing activity is not expected.

The Gunna Sound and the surrounding area also supports other users, such as recreational boaters, kayakers and submarines. Any disruption to other sea users that operate within the Gunna Sound or the surrounding areas will be mitigated against with ongoing communication and publishing of NtM, ensuring coordination of any potential conflicting activities. Any disruption to other sea users caused by the installation of the replacement cable will be minor and temporary due to their short-term and localised works. As such no significant impacts to commercial fisheries and other sea users as a result of the Coll to Tiree cable replacement project are expected.

12. UXO AND EXISTING UTILITIES

12.1 Introduction

This section details the presence of any existing utilities and the potential for Unexploded Ordnance (UXO) to be present, outlines the potential impacts associated with the proposed cable installation activities on these, and presents the findings of the environmental assessment.

For the purpose of this section:

- UXO refers to explosive weapons that did not detonate when they were deployed and still poses a risk of detonation as it seldom degrades or loses its high explosive effectiveness over time. UXO have been deployed in the marine space worldwide and therefore there is the potential that they could be present within the Application Corridor.
- Utilities refers to existing structures such as cables, oil and gas infrastructure, and offshore renewable energy infrastructure.

12.2 Data Sources

As part of the route engineering process, Ocean IQ delivered a desk-based assessment of UXO, it was indicated that the risk of UXO is considered to be low and as a result, the geophysical survey was not undertaken to any specific UXO specifications by Spectrum as part of the 2023 geophysical campaign.

Utilities data is available across multiple sources such as Crown Estate Scotland (CES), North Sea Transition Authority (NSTA), Kingfisher Information Service – Offshore Renewable & Cable Awareness project (KIS-ORCA), and EMODNet) All data sources used are referenced throughout this section.

12.3 Baseline and Receiving Receptors

12.3.1 UXO

Many explosives were left in the marine environment after World Wars (WW) I and II. The explosives might be isolated or in regions where munitions are dumped. Any new marine development or activity must demonstrate that the region is free of UXO or that UXO can be safely avoided before work can begin (UK Government, 2022).

The marine environment in proximity to the Coll to Tiree cable replacement Application Corridor has a history of military activity from both World Wars, which could result in potential UXO contamination. The area includes a British WWII armament site to the east and is located within a modern naval training area, though the likelihood of encountering UXO along the cable route is considered low (OceanIQ, 2023). While there are WWII minefields southwest of the Application Corridor and German WWI mines further afield, these are either unlikely to drift into the area or are heavily corroded, presenting minimal risk. There are no known OSPAR munition encounters of interest (2017) noted on the cable route. Historical wrecks linked to U-Boat activity and stray munitions from naval and aerial warfare may also be present, but these are expected to occur at low densities. No known munitions dumping sites or significant UXO encounters have been recorded along the cable route. However, a UXO Hazard Assessment may be required to confirm the area's safety prior to installation activities.

12.3.2 Existing Utilities

Marine utilities include renewable energy infrastructure, telecommunication cables, oil and gas infrastructure and aggregates for marine extraction and disposal. Figure 12-1 (Drawing Reference: P2663K-INFR-001) presents an overview of existing marine utilities in the vicinity of the Application Corridor.

Based on the results of the geophysical report, there are up to three cables within the Application Corridor, two of these cables are OOS cables and one of these cables is the current in-service cable (Aspect, 2024). This conclusion is drawn from two groups of three linear magnetic anomalies observed on the Tiree side, suggesting the presence of up to three cables. However, not all anomalies are supported by multiple datasets, and limitations in magnetometer acquisition lines between the clusters may affect the ability to confirm these observations.

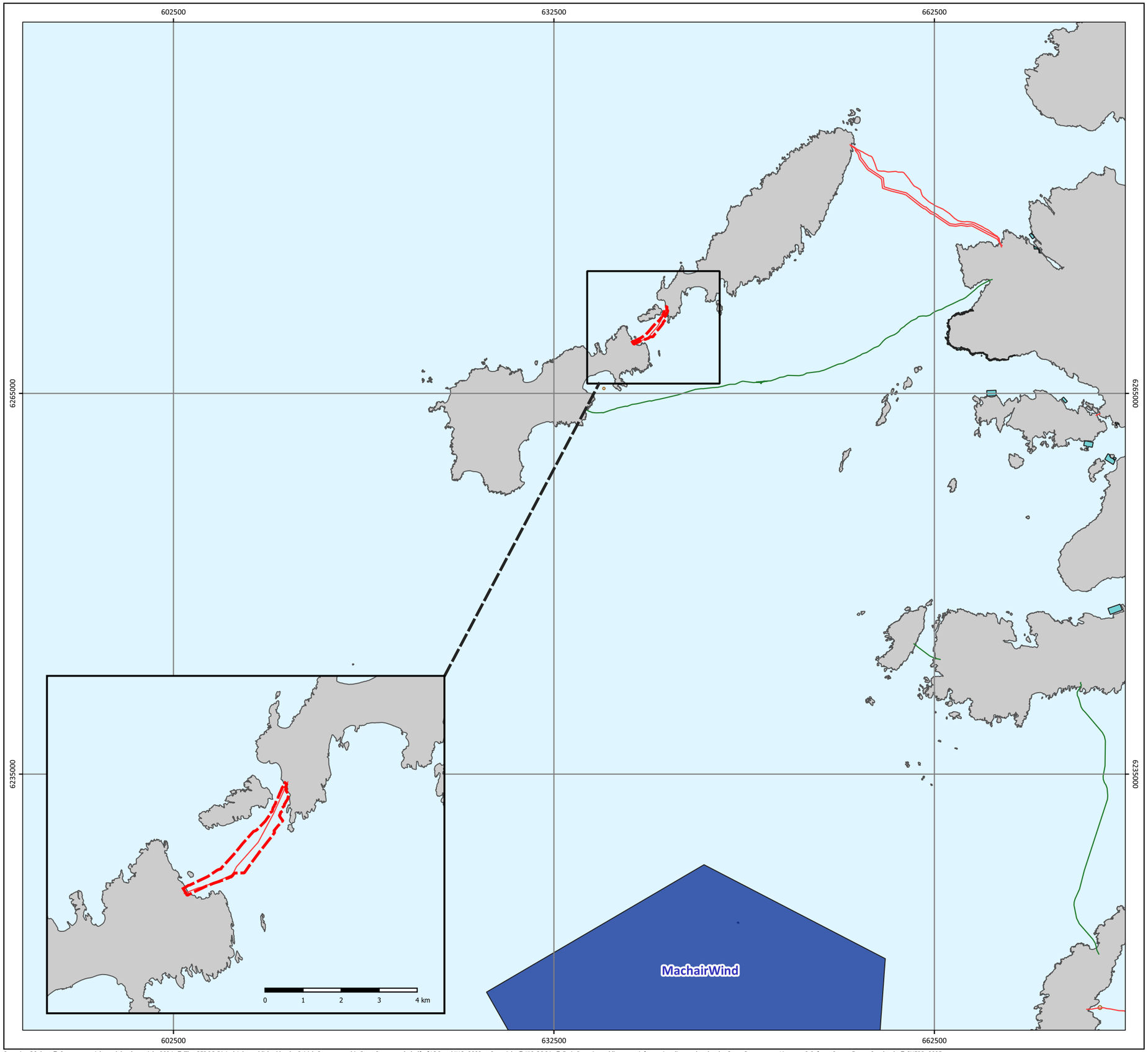
There are no active, disused, or closed dredging or dumping sites located near the Coll-Tiree Application Corridor.

CES has granted Scottish Power Renewables (SPR) the rights to develop the Machair Wind project, a fixed offshore windfarm located 41.4km south of the Application Corridor. The planned windfarm will cover an area of 754 km² and is expected to generate 2GW of renewable energy for the National Grid. Currently in the development phase, the project is not anticipated to impact the proposed Coll-Tiree cable replacement.

The coastal shelf offshore Scotland has been divided into lease blocks designated for the exploration and extraction of oil and gas resources, regulated by the Oil and Gas Authority (OGA) to manage the sustainable use of marine resources (OGA, 2023). The Coll-Tiree Application Corridor does not cross any licensed oil and gas blocks, suggesting the absence of hydrocarbon reserves within the area. This is further supported by the geology of the Inner Hebrides and the Gunna Sound, which is not typically associated with commercially viable oil and gas deposits (BGS, 2023). Given the location of the cable route within the confined and shallow waters of the Gunna Sound, future exploration activities in this region are considered highly unlikely. Furthermore, the emphasis on renewable energy projects, such as offshore wind, in Scotland's coastal waters further reduces the potential for oil and gas activities to develop in the vicinity of the proposed cable route (Scottish Government, 2021).

There are no pipelines noted on the UKHO charts or the OceanIQ database within the Gunna Sound or Crossapol Bay.

There is no aquaculture sites located in, or in proximity to the Application Corridor.



COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

INFRASTRUCTURE

Surrounding Infrastructure and Marine Users

Drawing No: P2663K-INFR-001 | B

Legend

- Application Corridor

Cables

- Power - Active
- Telecom - Active

Infrastructure

- Offshore Wind Site
- Aquaculture Site

N

NOT TO BE USED FOR NAVIGATION

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Created By	Lewis Castle
Reviewed By	Emma Langley
Approved By	Vicky Fisk

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12.4 Impact Assessment

Based on the potential interaction between the Project and UXO and existing utilities, the Application Corridor is located in an area with minimal overlap or conflict with existing utilities. While potential interactions with up to three existing cables require careful management, however, these are owned by SHEPD and therefore not considered third party assets. The absence of pipelines, dredging activities, aquaculture, and active oil and gas blocks reduces the risk of significant impacts. With appropriate mitigation measures in place, the overall impact of the cable replacement Project on marine utilities is assessed as low.

12.4.1 Abrasion / Disturbance at the Surface of the Substratum

Based on previous studies in the area, the likelihood of encountering UXO during the installation campaign was considered low.

The likelihood of a detonation of pUXO is dependent on the kinetic energy from the installation activity as this will be what triggers an explosion. As the cable will be majority surface laid (except for small sections along the cable route were burial is permitted and the intertidal area), the amount of potential kinetic released during the installation works is considered to be reduced.

Within the Gunna Sound and surrounding area, there have been no recorded previous munitions encounters. Anomalies identified during the marine survey campaign in the Application Corridor were identified as existing cables, geological formations or boulders. Any pUXO will be avoided by an exclusion zone of at least 15m during the route engineering process.

Despite this, there is still the potential that the Project could encounter pUXO during installation. This could result in the loss of equipment, damage to the cable, damage to any vessel working on the Project and injury or death of personnel. As such, these risks are considered medium based on the potential for interaction and must be mitigated.

12.4.2 Damage to Third-party Assets

There are two planned cable crossings within the Application Corridor. One is on one section of existing Coll – Tiree power cable at the Coll landfall, whilst the other section is located to the east of the Gunna Sound. 50m of articulated pipe will be used at the crossing locations to ensure no damage to the operational or new cables. Crossing designs have also been engineered to ensure no damage to either cable will occur, as SHEPD have an interest in protecting and maintaining both the new and existing cables.

Based on the above assessment, there are no adverse effects expected to occur to any third-party (or SHEPD owned) assets as a result of Project activities.

12.5 Mitigation

If pUXO items are discovered during any phase of the Project, the location of the item will be recorded and immediate advice sought from relevant authorities. If a UXO is identified during the construction phase, then works will cease immediately until advice and remedial actions are implemented. In addition, munitions awareness briefings will be given to contractor's and ship personnel prior to and during the construction phases. The MoD and emergency services will be consulted as appropriate.

No further mitigation is planned for the cable crossings or other installation works.

12.6 Conclusion

While there exists the potential for UXO to be present within the Application Corridor, the risk of encountering UXO during installation has been mitigated through recommendations from a UXO

specialist, including personnel briefings and a 15m exclusion zone around any potential UXO during the route engineering process to reduce the potential for encountering any ordinance.

The Application Corridor crosses two cables (the existing Coll - Tiree distribution cable and two unidentified OOS cable). As these assets are either owned by the SHEPD or not in use, there are no significant effects envisaged from installation operations.

13. SHIPPING AND NAVIGATION

13.1 Introduction

13.1.1 Aim of this Section

This section identifies the potential risk to shipping and navigation arising from activities associated with installation of the replacement cable and the presence of the replacement cable during its operational lifespan.

Where relevant, any limitations related to the baseline conditions, data sources or scientific understanding/interpretation within the process of assessing the effects have been highlighted.

13.1.2 Data Sources

Vessel traffic Automatic Identification System (AIS) data has been used to inform the shipping baseline outlined in this section. As per Regulation 19 of Chapter V, Safety of Navigation, of the Annex to the International Convention for the Safety of Life at Sea (SOLAS V), 1 July 2002, an AIS must be installed and operated on: all ships of 300 gross tonnage (GT) and upwards engaged on international voyages; cargo ships of greater than 500GT not engaged on international voyages; all passenger vessels irrespective of size and fishing vessels greater than 15 metres (m). In recent years, AIS has increasingly been installed by other maritime users on smaller crafts, including yachts, fishing vessels, and pleasure crafts, making it a robust and reliable indicator of marine traffic.

A review of shipping and navigational features was carried out as part of the Cable Route Desktop Study (OceanIQ, 2023) which included a review of AIS data between 2012 and 2023. This study also identified potential hazards to the cable system, potential impact, mitigative measures applied to the Project and the risk outcome.

Baseline conditions for shipping and navigation have been established by undertaking a desktop review of published information and available reports for the Project in relation to shipping, fishing and navigation. The data sources used to inform the baseline description and assessment included the following:

- AIS data, EMODnet (2024);
- Royal Yachting Association (RYA) Data for 2019;
- Royal National Lifeboat Institution (RNLI) incidents 2008 to 2021Marine Accident Investigation Branch (MAIB) annual reports 2011 to 2023. Study area

The study area covers the marine components of the cable installation works in Gunna Sound between Coll and Tiree and has been defined as 10km either side of the proposed Application Corridor.

All AIS data and navigational features datasets presented in this section are limited to the area of the assessment, hereby known as the Study Area.

13.2 Guidance Methodology

The Navigation Risk Assessment (NRA) methodology used in this section differs slightly from a significance assessment and has been prepared in accordance with the guidance below:

- International Maritime Organisation (IMO) Guidelines for Formal Safety Assessment (FSA) – MSC-MEPC.2/Circ.12/Rev.2.

Whilst not necessarily directly applicable to marine cable projects, consideration to linear cables in relation to offshore renewable structures has been considered using:

- Maritime and Coastguard Agency (MCA) MGN 543 (Merchant and Fishing) Safety of Navigation Offshore Renewable Energy Installations (OREIs) – Guidance on United Kingdom (UK) Navigational Practice, Safety and Emergency Response (MCA, 2016) and industry best-practice.
- Marine Guidance Note "Offshore Renewable Energy Installations (OREIs) – Guidance to Mariners operating in the vicinity of UK OREIs".
- Methodology for Assessing the Marine Navigational Safety Risks & Emergency Response of Offshore Renewable Energy Installations.

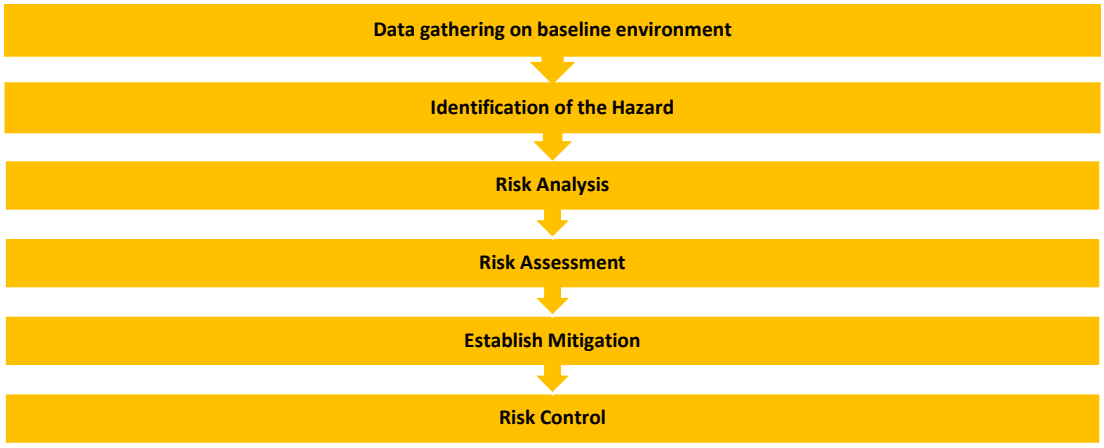
Where applicable, further consideration has been given to:

- Port Marine Safety Code (PMSC) (Dept. for Transport & Maritime and Coastguard Agency, 2016).
- Guide to Good Practice on Port Marine Operations (GtGP) (Dept. for Transport & Maritime and Coastguard Agency, 2018).

The assessment has been informed by the above guidance which states that the assessment stage should follow a clear progression; from the characterisation of the hazard, the risk that hazard has on (in the case of this assessment) the existing shipping baseline and the steps & risk controls that are in place to reduce the overall impact of the hazard to As Low As Reasonably Practicable (ALARP).

The assessment process involves the following main steps presented in Figure 13-1.

Figure 13-1 Assessment steps



For the purposes of this section the definition of "Hazard", "Risk" and "Maximum Displacement" are detailed below.

- **Hazard** - A potential source of marine incidences & collisions to the existing baseline of other marine users.
- **Risk**- The probability of suffering harm, loss or displacement and is a measure of the probability and consequence of a hazard.
- **Maximum Displacement** – defined as the maximum number of vessels affected and duration of displacement during the installation operations, as a result of the installation operations.

The steps presented in Figure 13-1 are described in more detail below.

13.2.2 Data Gathering on Baseline Environment

To assess the potential effects resulting from the Project it is necessary to establish the current shipping conditions and features that exist along and near the Project. A 10km buffer has been applied around the Project to ensure that all shipping patterns and navigational features are captured.

The analysis has included:

- Potential accidents resulting from navigation activities (MAIB & RNLI).
- Navigation activities affected by the Proposed Development.
- Project structures that could affect navigation activities, such as external protection installed on the seabed.
- Project phases that could affect navigation activities.
- Other structures and features that could affect navigation activities.
- Vessel types involved in navigation activities.
- Conditions affecting navigation activities.
- Human actions related to navigation activities for use in hazard identification (if possible).

13.2.3 Identification of the Hazard

The hazard identification phase seeks to build on the work of the data gathering and identify known hazards expected to be encountered as a result of the marine operations and presence of Project vessels.

The hazards have been identified in relation to where the Project may make it more likely that existing vessels will deviate from the International Regulations for Preventing Collisions at Sea (COLREGS), either as an intended or unintended action.

This may include any effects which the Project might have on existing vessels such as vessels giving appropriate clearance to cable operations when undertaking cable installation and obstruction to the light and sound signals made by vessels and navigational aids in particular circumstances.

The approach used for hazard identification comprises a combination of both creative and analytical techniques, the aim being to identify all relevant hazards. Where relevant, consultation has been undertaken with stakeholders to help to identify hazards. The creative element is to ensure that the process is proactive and not confined only to hazards that have materialized in the past.

13.2.4 Risk Analysis

The risk analysis introduces the concept of risk in a qualitative way in order to prioritise the hazards identified during the hazard identification process and assesses their impact on navigational safety.

Risk is the combination of frequency and consequence which are defined in Table 13-1 and 13-2 below. The definitions below have been developed using the IMO guidelines which includes effects on human safety and ships, however this assessment also focuses on displacement of existing vessels and this is the most likely consequence of the proposed development.

Table 13-1 Frequency of a Hazard

Value	Description	Definition
1	Extremely Remote	Likely to occur once in the lifetime of the project (25 years)
2	Remote	Likely to occur once per year
3	Probably	Likely to occur once per month
4	Very Probable	Likely to occur once per week
5	Frequent	Likely to occur once per day

Table 13-2 Consequence of a Hazard

Value	Description	Definition		
		Effects on Human Safety	Effect on Ship(s)	Displacement of Vessel(s)
1	Minor	Single or minor injuries	Single local equipment damage	Temporal displacement of vessel (hours)
2	Significant	Multiple minor injuries	Multiple local equipment damage	Temporal displacement of vessel (days)
3	Severe	Multiple or severe injuries	Non-severe ship and equipment damage	Temporal displacement of vessel (weeks)
4	Serious	Single fatality or multiple severe injuries	Severe damage to ship and equipment	Temporal displacement of vessel (months)
5	Catastrophic	Multiple fatalities	Total loss of ship and equipment	Permanent displacement of vessels

Risk prioritisation is an important part of the process, the greater the potential of a hazard, the greater the need to ensure that there are mitigation measures in place to control the risk.

13.2.5 Risk assessment

IMO Guidelines above define a hazard as "something with the potential to cause harm, loss or injury" the realisation of which results in potential accidents and, in this case, vessel displacement. The potential for a hazard to be realised can be combined with an estimated (or known) consequence of outcome. This combination is termed "risk". Risk is therefore a measure of the frequency and consequence of a hazard. One way to compare risk levels is to use a matrix approach.

Having established the frequency and consequence of the hazard, a risk assessment has been carried out using a risk matrix, adapted from the guidance above, presented in Table 13-3.

Table 13-3 Risk Matrix

		Consequence				
		Minor	**Significant**	**Severe**	**Serious**	**Catastrophic**
Frequency	**Extremely Remote**	**1**	**2**	**3**	**4**	**5**
	Remote	**2**	**4**	**6**	**8**	**10**
	Probably	**3**	**6**	**9**	**12**	**15**
	Very Probable	**4**	**8**	**12**	**16**	**20**
	Frequent	**5**	**10**	**15**	**20**	**25**

At the low end of the scale, frequency is extremely remote and consequence minor; risk can be said to be negligible. At the high end, where hazards are defined as frequent and the consequence catastrophic, then risk is intolerable.

The result of using this matrix approach is to ensure that the level of risk is reduced to ALARP for the effects that the Project has on the baseline shipping environment. This is undertaken prior to any mitigation. Best Practice and Project Specific Mitigation will then be applied to generally reduce the effects to ALARP.

Definitions of the risk levels are provided in Table 13-4 below.

Table 13-4 Definitions of Risk Levels with Respect to Vessel Displacement

Score	Classification	Definition
1-2	Negligible	A hazard which causes noticeable changes in the navigation environment but without effecting its sensitivities. Generally considered as insignificant.
3-4	Minor	A hazard that alters the character of the navigation environment in a manner that is consistent with existing baseline. Hazards are generally considered as minor and adequately controlled by best practice and legal controls. Opportunities to reduce hazards further through mitigation may be limited and are unlikely to be cost effective.
5-9	Moderate	A hazard which, by its frequency and consequence alters the aspect of the navigation environment. Generally considered as Moderate but effects are those, considered to be tolerable. However, it is expected that the hazard has been subject to feasible and cost-effective mitigation and has been reduced to As Low As Reasonably Practicable (ALARP) and that no further measures are feasible.
10-14	Major	An effect which, by its frequency and consequence alters most of the aspects of the navigation environment. Generally regarded as unacceptable prior to any mitigation measures being considered.
15-25	Intolerable	Regarded as unacceptable prior to any mitigation measures being considered.

13.2.6 Establish Mitigation

The risk assessment includes a review of existing hazards and their associated mitigation measures. As a result, new mitigation measures (or changes to existing mitigation measures) may be identified for consideration, both where there are gaps in existing procedures and where mitigation need to be enhanced.

Mitigation measures are the actions or systems proposed to manage or reduce the potential negative effects identified. Mitigation measures that are embedded in the Project design are listed in Table 4-1.

13.2.7 Risk Control

The aim of assessing the Project operations on the existing shipping baseline is to reduce risk to ALARP.

The risk assessment is repeated taking into consideration the application of Best Practice and Project Specific Mitigation. This determines the risk level of the hazard with mitigation applied. When the risk assessment is carried out after mitigation is applied, the resulting risk level is referred to as ALARP.

Risks that have been assessed as **Major** or above after considering mitigation will normally require additional analysis and consultation to discuss and possibly further mitigate hazards where possible. Where further mitigation is not possible a residual hazard may remain.

13.3 Marine Campaign Works

The Project Description is provided in Appendix A and provides details of the proposed route and operational aspects of the marine campaign works such as cable installation, site preparation and cable protection methods. A schedule is also included estimating the timeframe for the various marine activities. Most operations will be performed on a 24-hour basis. Durations presented are exclusive of weather downtime above vessel working limits and any third-party influences that may increase the duration or interrupt operations

Existing vessels will be requested to remain at least 500m from Project vessels whilst they are engaged in cable installation activities. This is due to the cable lay vessel's limited ability to manoeuvre whilst

undertaking operations. In addition, there is potential for the support vessels to be positioned using spud legs and as such they will be fixed, unmaneuverable structures whilst in operation.

Pertinent Information from the Project Description that is directly relevant to the marine activities is outlined below.

Pre-Lay Survey
A detailed geophysical pre-lay survey will be undertaken across the entire Application Corridor. Typically, vessels survey at approximately **800 metres per hour(m/hr).** The pre-lay survey is estimated to take **2 days**.

Therefore, as a worst case the maximum area for disruption would be 1km wide by 2.1km long per 24-hour period.

Pre-Lay Grapnel Run (PLGR) including route clearance
PLGR progress rates are approximately **1.85km/hr** and it is estimated to take **up to 6 days** to complete. This usually clears the route of any debris such as out of service cables and fishing gear etc.

Large boulders that cannot be avoided during the route engineering process will need to be cleared on a case-by-case basis. Operational progress rates for these operations are currently unknown.

Therefore, as a worst case the maximum area for disruption during a PLGR would be 1km wide by 700m long per 24-hour period.

Cable Shore End Pull-In Operations and Intertidal Cable Burial
During the cable pull in operations the cable lay vessel (CLV) will be stationed around 13m water depth. Once the cable is laid across the seabed, the cable lay vessel will remain on station at the 10m water depth contour at the other shore end. The cable will then float off the vessel to shore to complete the second cable pull in operation. The total cable pull in operation is estimated to take **13 days**.

Cable Lay Operations
Once the cable is successfully pulled (first cable pull-in) to its required position onshore, the buoyancy units will be removed and the CLV will commence laying operations until the second cable pull in. The CLV is a DP2 class vessel and expected laying speed will be between **250m/hr** and **350m/hr**. Cable lay operations are expected to take place over **up to 14 days**. This may be increased due to weather down time and vessel maintenance.

Therefore, as a worst case the maximum area for disruption would be 1km wide by 300m long per 24-hour period.

Cable Protection Installation and Post-Lay Inspections
The cable protection strategy may include the installation of split (Articulated) Pipe and potential rock placement. Generally, split pipe is installed following the cable pull-in operations by divers or from the CLV, or by a combination of both methods. Typical speeds for installing articulated piping are around **0.6m/hr**. The utilisation of rock protection would require the installation of graded rock deposited on top of the cable using a DP. Cable protection installation will be undertaken over **up to 40 days**.

Operational phase

Routine inspections to examine the subsea infrastructure would take place periodically every 5-8 years after installation during the lifetime of the cable and would utilise a remotely operated vehicle (ROV) where practical to do so. This would involve a 500m radius around the survey vessel moving at 150m/hr.

13.4 Existing Baseline Assessment

13.4.1 Shipping Overview

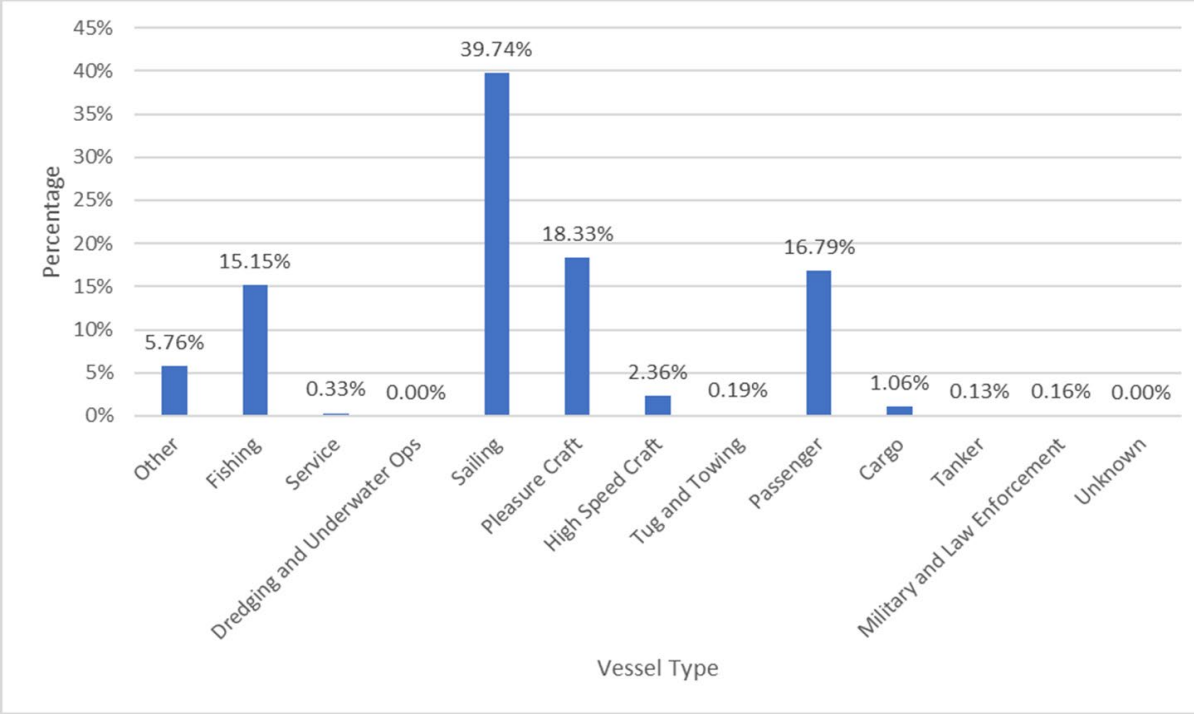
The proposed cable route between Coll and Tiree lies across Gunna Sound which is used predominantly by pleasure craft transiting between the islands. Fishing vessels also transit through the Sound enroute to fishing grounds further offshore (OceanIQ, 2023).

A review of marine traffic density within the Gunna Sound identified a small volume of tugs and special crafts transiting from Tiree Harbour, however these vessels were not observed to cross the Application Corridor (OceanIQ, 2023). The review also highlighted the ferry service operating between Coll and Tiree by CalMac Ferries, with passenger vessels transiting to and from Tiree Harbour in Gott Bay. Furthermore, the Application Corridor intersects the Barra (Castlebay) – Tiree (Tiree Harbour) ferry route operated by CalMac Ferries. This route is completed by The Clansman passenger vessel and operated between the summer months only (April – October).

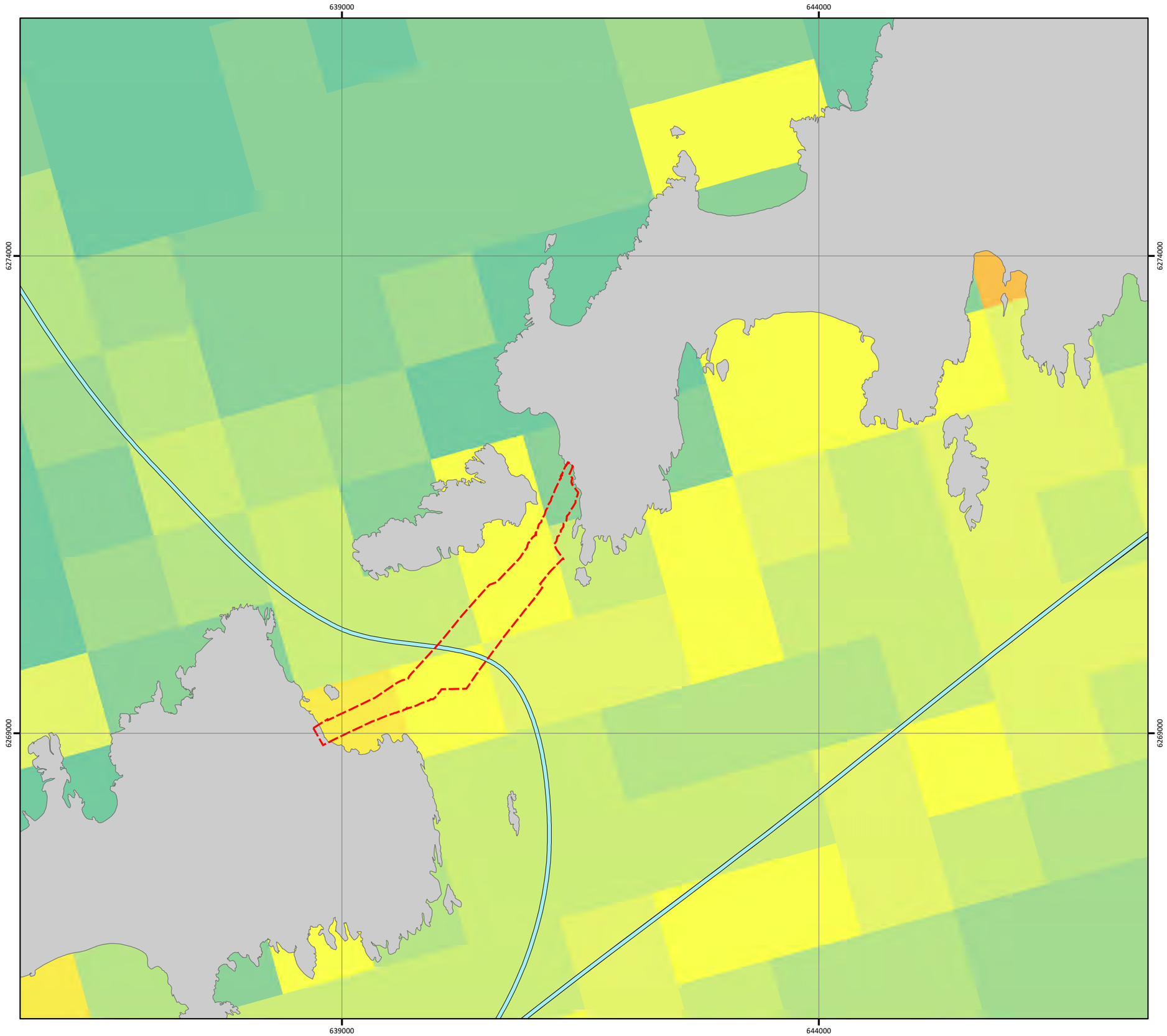
Analysis of vessel distribution by vessel type concluded that within the Application Corridor sailing and pleasure craft vessels are the dominant vessel type present (Figure 13-2, Drawing Reference: P2663K-AIS-002). Furthermore, 12 months of AIS data from January to December 2023 (EMODnet, 2024) were analysed to examine the typical patterns of vessel activity within/in the vicinity of the Application Corridor. The total average monthly vessel density within the Application Corridor can be observed in Figure 13-3 (Drawing Reference: P2663K-AIS-001). Vessel density within the Application Corridor is moderate with an average of up to 5-10 vessel hours per km^2 recorded across the Application Corridor in 2023 (Figure 13-3 (Drawing Reference: P2663K-AIS-001).

Other vessel types commonly observed in the Gunna Sound include passenger and fishing vessels accounting for 17% and 15% of vessel traffic respectively (Figure 13-2).The Royal Yachting Association (RYA) has classified the activity of recreational vessels in the Gunna Sound as “Low Recreational Use” (RYA, 2019).

Figure 13-2 Vessel Distribution across the Coll to Tiree Application Corridor



Source: EMODnet (2024)



COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

AIS VESSEL DENSITY

Average Monthly Vessel Hours (2023) All Vessels

Drawing No: P2663K-AIS-001	B

Legend

Application Corridor

Ferry Route

2023 Vessel Density

Vessel Hours (per km²)

- < 0.05
- 0.05 - 0.1
- 0.1 - 0.2
- 0.2 - 0.5
- 0.5 - 1
- 1 - 2
- 2 - 5
- 5 - 10
- 10 - 20
- 20 - 50
- 50 - 100
- 100 - 200
- 200 - 500
- > 500

NOTE: Not to be used for Navigation

Date	04 February 2025
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Projection	Transverse Mercator
Datum	WGS 1984
Data Source	OS; GEBCO; SHEPD; EMODnet; MS
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Created By	Rosie Wilson
Reviewed By	Emma Langley
Approved By	Aodhfin Coyle

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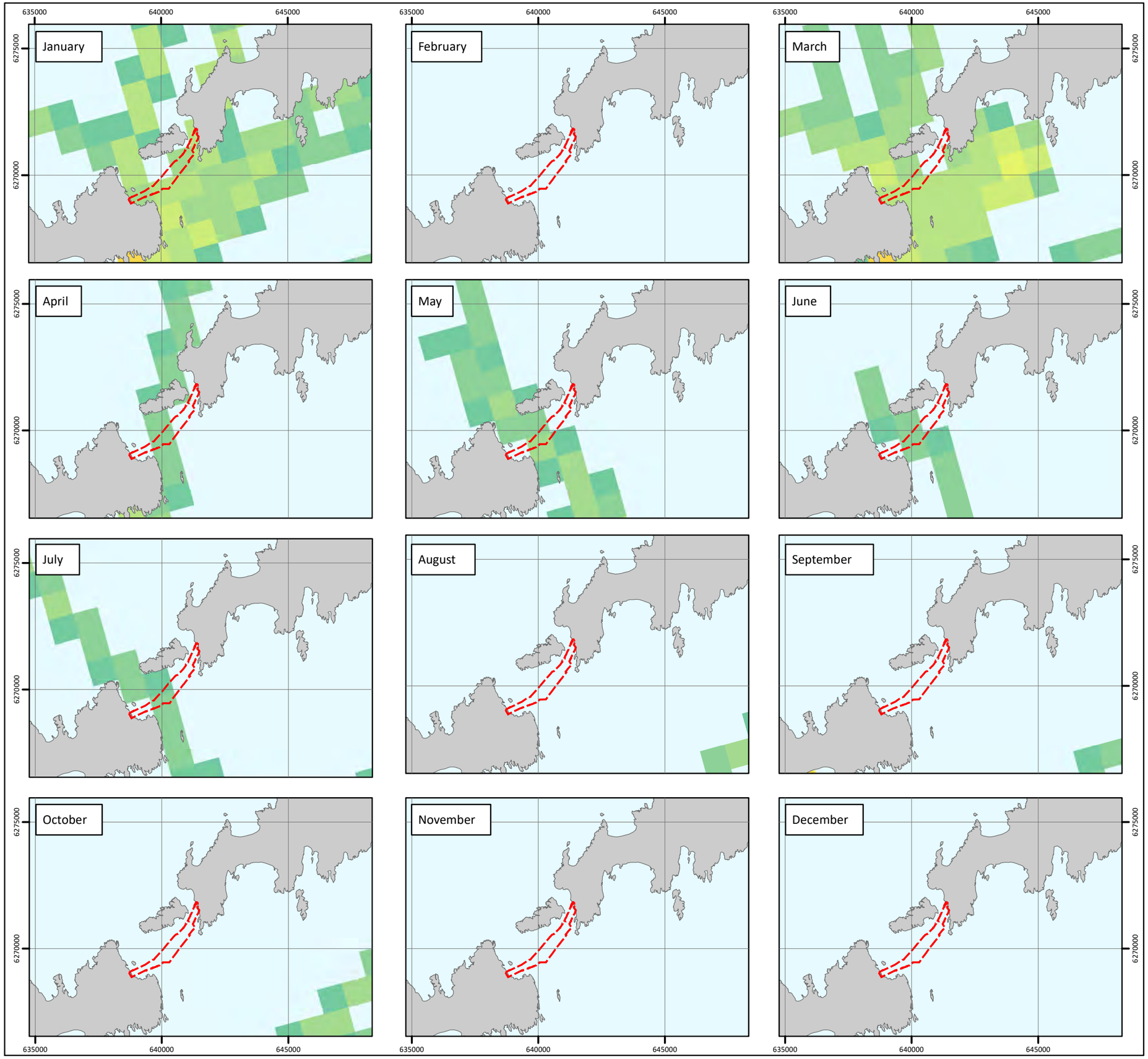
Seasonal distribution of the vessel traffic has been analysed in full concluding that the busiest month for fishing vessels within the Application Corridor is August and cargo vessels show a consistently low density year round (Figure 13-4 and Figure 13-5, Drawing Reference: P2663K-AIS-002 and 003).



COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

AIS VESSEL DENSITY

Monthly Vessel Densities (2023) Fishing Vessels

Drawing No: P2663K-AIS-002 | **B**

Legend

Application Corridor

2023 Vessel Density

Vessel Hours (per km²)

- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.2
- 0.2 - 0.5
- 0.5 - 1
- 1 - 2
- 2 - 5
- 5 - 10
- 10 - 20
- 20 - 50
- 50 - 100
- 100 - 200
- 200 - 500
- > 500

N W E S

NOTE: Not to be used for Navigation

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Created By	Rosie Wilson
Reviewed By	Emma Langley
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0 2.5 5 7.5 10 km

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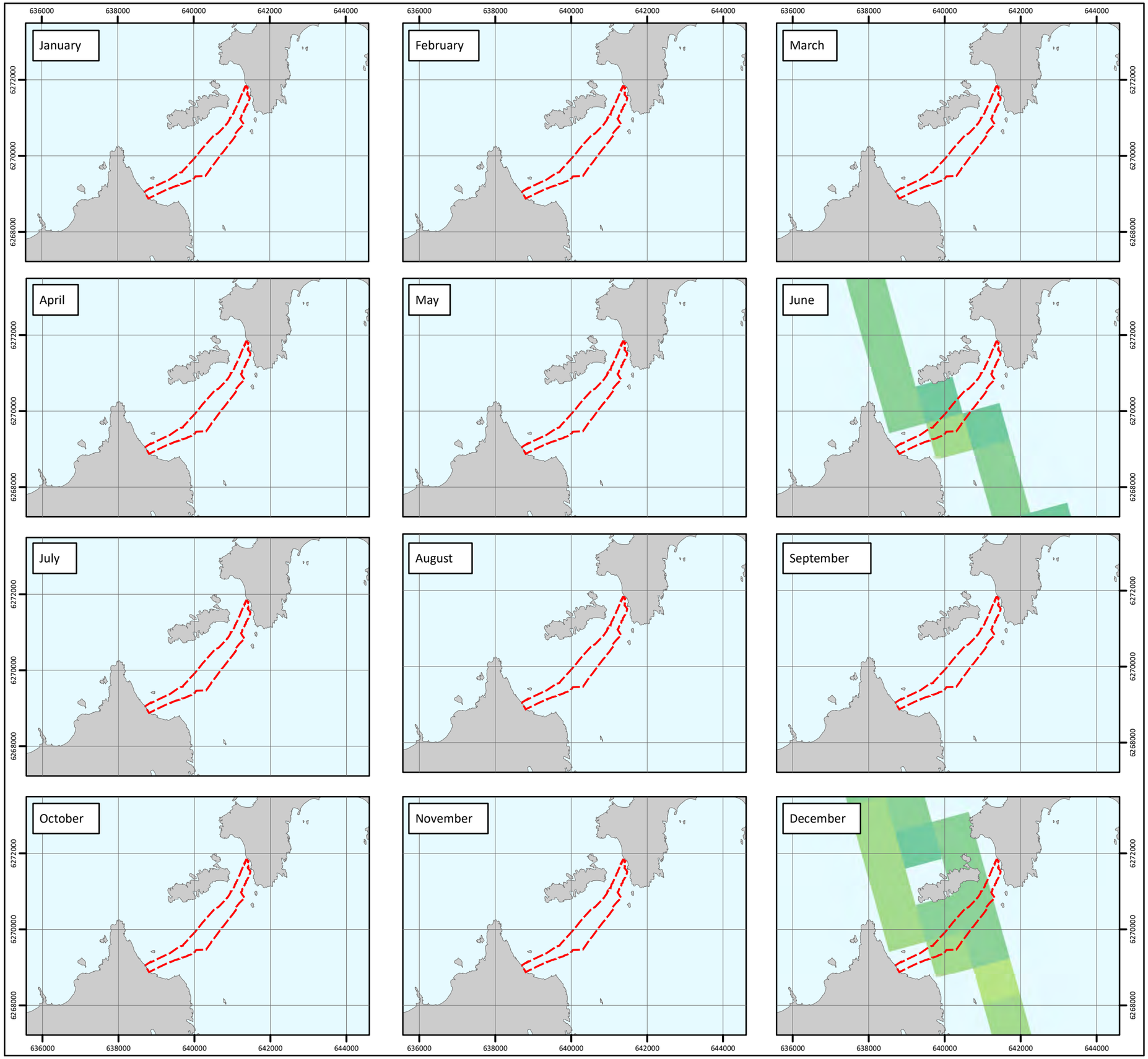

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

AIS VESSEL DENSITY

Monthly Vessel Densities (2023) Cargo Vessels

Drawing No: P2663K-AIS-003 | **B**

Legend

Application Corridor

2023 Vessel Density

Cargo Vessel Hours (per km²)

- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.2
- 0.2 - 0.5
- 0.5 - 1
- 1 - 2
- 2 - 5
- 5 - 10
- 10 - 20
- 20 - 50
- 50 - 100
- 100 - 200
- 200 - 500
- > 500

N W E S

NOTE: Not to be used for Navigation

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Approved By	Aodhfin Coyle

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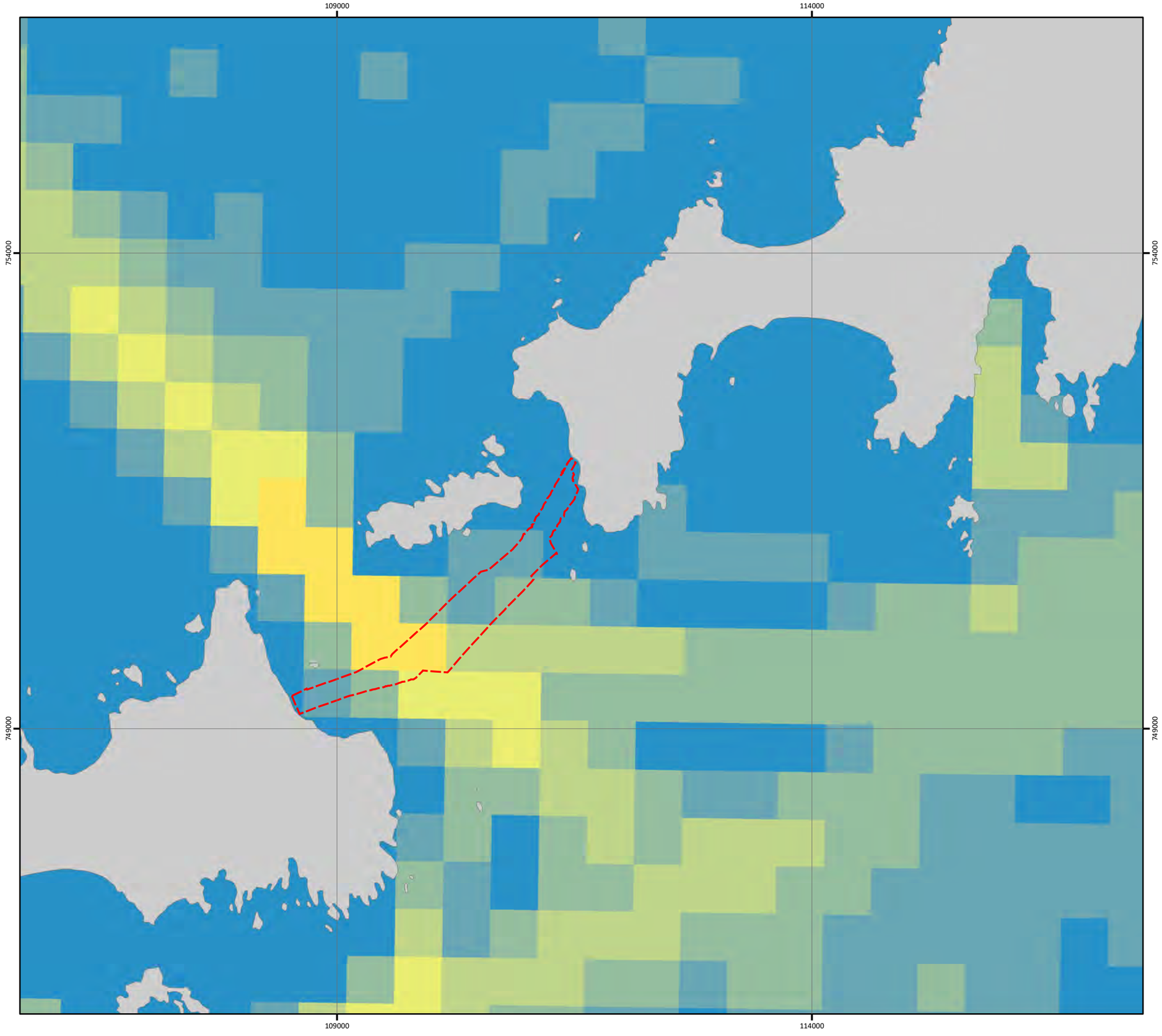
13.4.2 Navigational Features and Anchorages

The Coll to Tiree replacement cable route has been engineered to avoid all anchorages and as such there are no anchorages within the Application Corridor. The nearest charted anchorage is within Loch Breachacha, over 4km northeast of the landfall on Coll (OceanIQ, 2023). During an inspection of the existing Coll-Tiree cable, carried out in 2021, no evidence of anchor strike was found. There are no aids to navigation within 10km of the Application Corridor (OceanIQ, 2023).

13.4.3 Royal Yachting Association (RYA)

RYA clubs, training centres, marinas as well as the RYA AIS data and the Application Corridor are illustrated in Figure 13-6 (Drawing Reference: P2635-REC-001). The figure also presents a heat map of AIS data of the recreation boating activity across study area. Within the Application Corridor recreational yachting occurs at averagely moderate levels (Figure 13-6, Drawing Reference: P2635-REC-001).



COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

ROYAL YACHTING ASSOCIATION

RYA UK Coastal Atlas of Recreational Boating

Drawing No: P2663K-RYA-001 | **A**

Legend

Application Corridor

AIS Intensity (Recreational Yachting)

Intensity

Low

High

N W E S

NOTE: Not to be used for Navigation

Date	03 February 2025
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Projection	Transverse Mercator
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Reviewed By	Emma Langley
Approved By	Aodhfin Coyle

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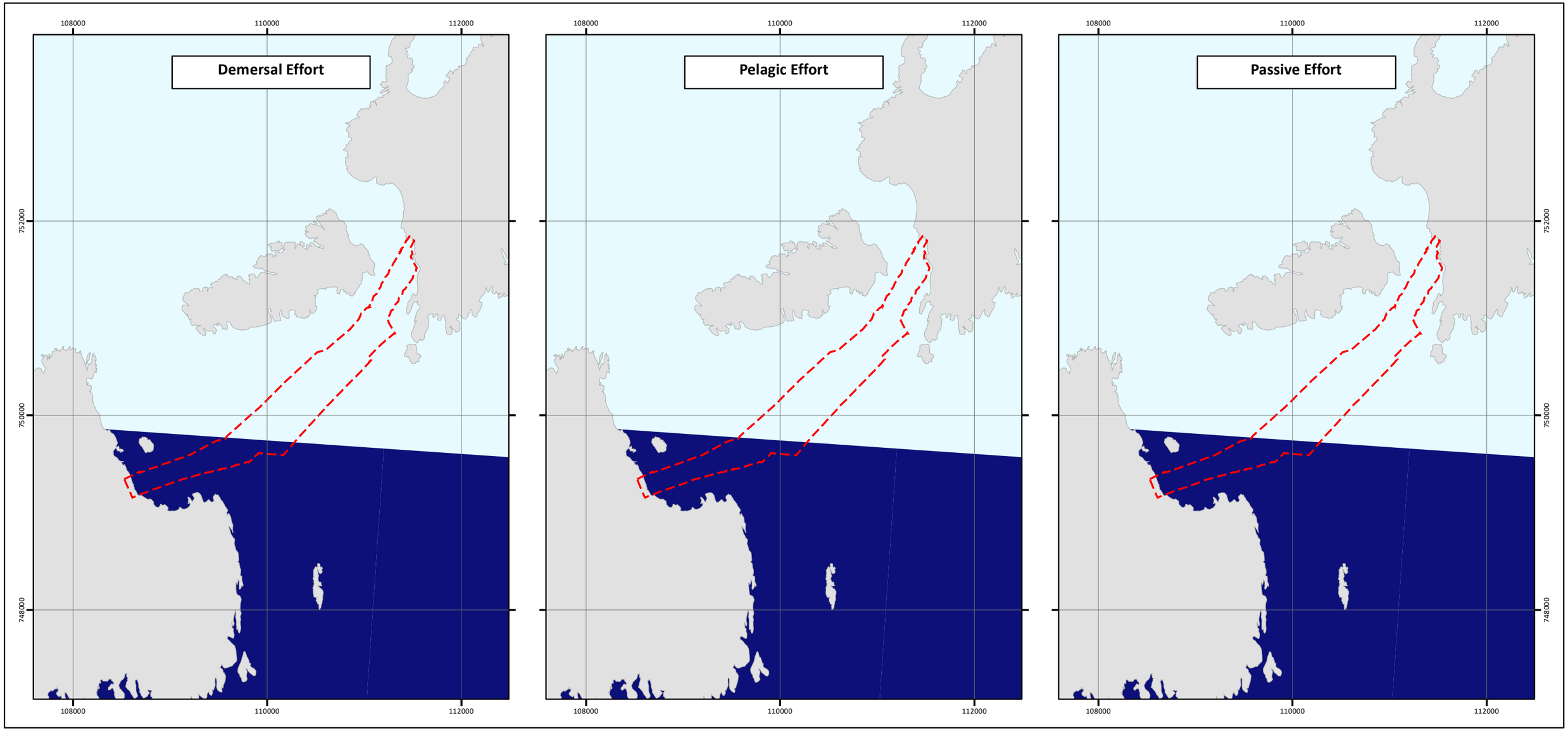
13.4.4 Fishing Overview

Section 11 (Commercial fisheries and other sea users) of this report provides a detailed assessment of the effects that the installation and operation of the replacement cable could have on fishing within/in the vicinity of the Application Corridor.

Many different fishing gears and fishing methods are used by commercial fisheries. Each gear type is used for specific activities and different gears can have very different impacts on the marine environment. In the Argyll area the most common gear types are potting (creeling), demersal twin trawling targeting *Nephrops* and scallop dredging (Appendix B) though fishing effort across the Application Corridor is low (Figure 13-7, Drawing Reference: P2663K-FISH-010). One possible instance trawl scars were observed close to the Coll landfall site (OceanIQ, 2023). Fishing activity spatial data provided by MMO (Marine Management Organisation) does not provide a complete dataset for some locations, but this does not indicate that no fishing activities occurs in these area

By analysing the fishing vessel density seasonally (Figure 13-4, Drawing Reference: P2663K-AIS-002), it can be seen that throughout the year fishing activity is low peaking in May and June with fishing vessel densities of 0.05 -0.1 vessel hours per km^2.



COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

FISHING ACTIVITY - Fishing Effort in kwh for ≥ 15m UK Vessels 2020

Drawing No: P2663K-FISH-010 | A

Legend

Application Corridor

Effort
(kilowatt/hours)

- > 0 - 2,500 (kilowatt/hours)
- > 2,500 - 5,000
- > 5,000 - 10,000
- > 10,000 - 20,000
- > 20,000 - 40,000
- > 40,000 - 80,000
- > 80,000 - 160,000
- > 160,000 - 320,000
- > 320,000 - 640,000
- > 640,000 (kilowatt/hours)

NOTE: Not to be used for Navigation

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Created By	Lewis Castle
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13.4.5 Marine Accident Data

This section reviews the maritime incidents that have occurred within 10km of the Application Corridor. The analysis is intended to provide a general indication as to whether the area of the Project is currently a low or high-risk area in terms of maritime incidents. If it were found that the proposed development resided in a high-risk area for incidents, this may indicate that the development could add to the existing maritime safety risks in the area.

Incident type and corresponding years for across the study area are presented in Figure 13-8. RNLI categories that are not relevant to this assessment have assigned to the category 'other'.

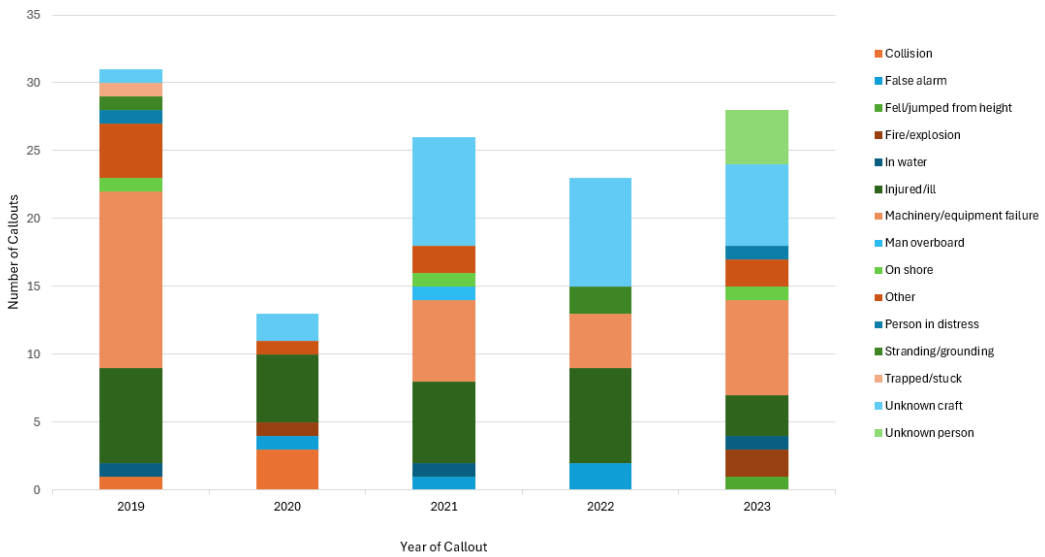
13.4.5.1 RNLI

Recent available RNLI data (collected between 2019 and 2023) has been plotted spatially and analysed across a 40km area around the Application Corridor.

The dataset is a condensed Return of Service data from RNLI callouts across the United Kingdom and the Republic of Ireland (RoI). It is worth noting that there are records present that have not been spatially adjusted to their exact locations but does give an indication of the number of marine incidences in the area (RNLI, 2021).

A total of 118 launches across the 40km study area were recorded by the RNLI (excluding hoaxes and false alarms). This corresponds to an average of around 24.4 incidents per year. However, there are no recorded incidents within the Application Corridor and the closest recorded incident is located 5km away indicating that the number of incidents within and in the vicinity of the Application Corridor is low (RNLI, 2024).

Figure 13-8 RNLI Yearly Callouts



Source: RNLI (2024)

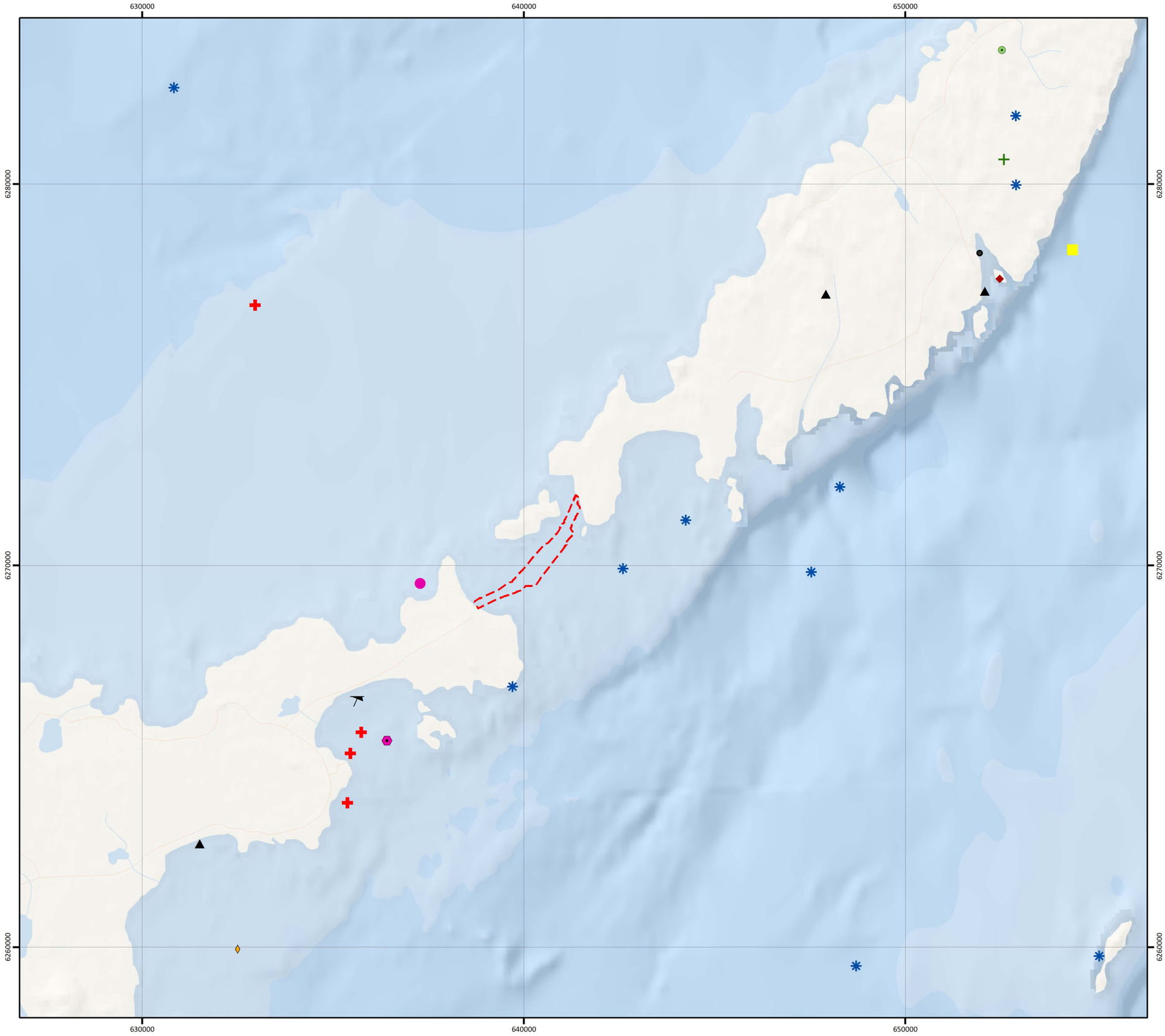
It can be seen that 'Machinery/equipment failure' accounts for the largest portion of the dataset. Due to the temporal effects of the offshore marine campaign works, and that incidences are largely as a result of machinery failure, it is not thought that the presence of Project vessels will increase the risks to the existing baseline of marine safety.

Figure 13-9 (Drawing Reference: P2663K-RNLI-001) presents the locations of incidences recorded by the RNLI.

COLL TO TIREE DISTRIBUTION CABLE REPLACEMENT

RNLI
Return of Service Data 2019 - 2023

Drawing No: P2663K-RNLI-001 | **B**



Legend

- Application Corridor

RNLI Returns of Service Incidents

- Ambulance or doctor call
- Capsize
- Cause (other)
- Illness
- In danger of drowning
- Machinery Failure
- Man overboard
- Person in distress
- Sail failure / dismasting
- Stranding / Grounding
- Thought to be in trouble
- Unknown

N W E S

NOTE: Not to be used for Navigation

Date	04 February 2025
Coordinate System	WGS 1984 UTM Zone 29N
Projection	Transverse Mercator
Datum	WGS 1984
Data Source	RNLI; OS; GEBCO; ESRI
File Reference	J:\P2663\P2663K\Mxd_QGZ\06_RNLI\ P2663K-RNLI-001.mxd
Created By	Lewis Castle
Reviewed By	Emma Langley
Approved By	Aodhfin Coyle

Scottish & Southern Electricity Networks

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13.4.5.2 Marine accident investigation branch

All UK-flagged commercial vessels are required by law to report accidents to MAIB. Non-UK flagged vessels do not have to report unless they are within a UK port/harbour or are within the UK 12 nautical miles (nm) and carrying passengers to or from a UK port. However, the MAIB will always record details of significant accidents of which they are notified by bodies such as the Coastguard. The MCA, harbour authorities and inland waterway authorities also have a duty to report accidents to the MAIB (The UK Government, 2023).

The last five years of annual MAIB reports from 2019 to 2023 have been analysed to determine if any accidents have occurred within the Argyll marine region. The findings have been summarised below as:

- **2023:** Fatal man overboard from fishing vessel approximately 1nm west of Luing, Scotland.
- **2022**: Fatal man overboard from a motor cruiser while assisting a yacht in Port Ellen, Isle of Islay.
- **2022**: An attempt to free a grounded motor vessel from rocks within Port William, Dumfries and Galloway resulted in it sinking while under tow. The sole occupant was recovered from the vessel and later declared deceased.
- **2021**: Fall of a suspended buoy resulted in serious injury to a deckhand off the Isle of Muck, Scotland.
- **2021**: Fatal man over board in the Sound of Rùm, Scotland.
- **2020**: No incidents or accidents relating to vessels at sea within the vicinity of the study area.
- **2019**: No incidents or accidents relating to vessels at sea within the vicinity of the study area.

No marine incidents have been reported by MAIB within the Gunna Sound.

It is worth noting that none of the incidents relate to a collision with other vessels so this area of the sea can be deemed relatively incident free.

13.5 Hazard Identification

Marine operations and their associated hazards have been identified and listed in Table 13-5. A hazard has been assigned to each aspect of the marine operation including the zone of influence, resulting in a worst-case assessment. The zones of influence are also presented in the table below.

Table 13-5 Marine Operations and Identified Hazards – Shipping and Navigation

Project Phase	Operation	Hazard Identified	Receptor	Zone of Influence
Pre-Lay	Pre-Lay Survey	▪ Displacement of vessels due to avoidance of project vessels ▪ Vessel Collision ▪ Project vessels blocking navigational features ▪ Fishing interaction with Surface laid cable ▪ Accidental anchoring on surface laid cable ▪ Extreme weather conditions	Project vessels; Commercial shipping; Recreational, boating and fishing vessels	1km wide
	Pre-Lay Grapnel Run			1km wide
	Boulder Clearance			1km wide along centreline (in any 24-hour period)
Installation	Shore End Operations (cable pull in)			1km wide at each shore end point (in any 24-hour period)
	Cable Lay			1km wide

Project Phase	Operation	Hazard Identified	Receptor	Zone of Influence
	Offshore installation, post-lay trenching	▪ Displacement of vessels due to avoidance of project vessels ▪ Reduced Visibility ▪ Change in water depth		1km wide at crossing and burial locations (in any 24-hour period)
	Mattress Installation			1km wide
	Articulated (split) Pipe Installation			1km wide
	Rock Bag Installation			1km wide
Operation and maintenance	Routine Inspection			1 km wide

13.6 Risk Analysis

13.6.1 Displacement of Vessels Due to the Avoidance of Project Vessels

Existing vessels may have to re-route around or reduce speed on approach to the project vessels which may causing a disturbance in the existing shipping patterns.

The presence of the project vessels will add an additional hazard for mariners to be aware of, which will potentially make them more vigilant when navigating through the area. There is ample 'sea room' for existing shipping to manoeuvre around the project vessels.

Since the project vessels will be moving at restricted speeds, any disruption will be temporary and short term in any one location. As shipping will have to make minor diversions to avoid the project vessels, their frequency has been assessed as **Probable**. For slower operations (cable lay, shore end installation and articulated pipe installation), disruption due to the presence of Project vessels could be **Very Probable**. It should be noted that due to the location of the Application Corridor within the Barra to Tiree ferry route and the location of the Coll to Tiree ferry transit in close proximity to the south of the Application Corridor, the project has the potential to temporarily impact these routes.

The Consequence has been assessed as **Minor** to **Significant** because it will be short-term, temporary and acceptable alternatives for route planning are available for shipping traffic to easily manoeuvre around project vessels.

13.6.2 Vessel Collisions

Existing vessels may have to re-route around project vessels which may create pinch points and alter the rate of encounters. Therefore, there is the potential for vessel-to-vessel collisions to occur as a result from existing shipping avoiding the marine operations, particularly across shipping lanes, near fishing grounds and at landfall areas.

Vessels will be operating in compliance with international shipping standards therefore vessel masters will be competent and adept at navigating in unfamiliar waters.

The probability of a vessel to vessel collision is **Extremely Remote** but the consequence could be **Catastrophic.**

13.6.3 Project Vessels Blocking Navigational Features

Project vessels have the potential to block key navigational features such as anchorages or leading lights for vessels on approach to ports.

While the Coll – Tiree route does not intersect any known anchorages some displacement of vessels may occur and consideration to existing vessels may need to be carried out for the pull in operations.

However, these effects are temporary, and the cable route does enter any port authority areas, so the probability is expected to be **Remote** and the consequence **Minor to Significant.**

13.6.4 Accidental Snagging of Fishing Gear on Unburied Cable

Fishing vessel gear will have the potential to interact with the cable route as the cable is surface laid. Pots and possible trawl scars were observed near the Coll landfall however, no other evidence of fishing interactions were observed across the study area (OceanIQ, 2023).

Once established, appropriate mitigation is needed to ensure the cable is suitably protected against fishing and anchoring in the area. While it is advised in The Mariners Handbook and as per European Subsea Cables Association (ESCA) standard industry guidelines that fishing should be avoided across subsea cables, it is assumed that fishing may occur across the cable once installed.

During the installation phase, there will be a designated Fisheries Liaison Officer (FLO). With these services in place, there will be a FLO monitoring body present during the installation process. The Project FLO can disseminate information to the guard vessels (if employed) regarding seasonal variations in fishing patterns.

The probability of a fishing gear interacting with the cables is **Remote**, but the consequence could be **Significant**.

13.6.5 Accidental Anchoring on Surface Laid Cable

Vessel anchors will have the potential to interact with the cable route if deployed where the cable is surface laid. However, it is very unlikely that an anchor will be deployed away from designated anchorage areas. The probability of an anchor deployment on a surface laid cable has been determined to be remote but remains a low probability in the event of an emergency or accidental deployment of an anchor.

As identified above, the Project may have guard vessels during cable installation operations. Any guard vessels (if employed) will be required to possess the correct insurances and be on the approved SHEPD framework prior to their deployment.

The probability of a ships anchor interacting with the cables are **Remote**, but the consequence could be **Significant**.

13.6.6 Extreme Weather Conditions

A long-range weather forecast is usually monitored hourly when conducting marine operations which mitigates the risk of encountering any adverse or extreme weather conditions. However, the Project vessels may need to shelter in port if weather exceeds working limitations. This would mean seeking shelter before the weather reaches the limitations of the vessel and its crew, however during the cable lay process this could mean cutting and buoying the cable in a situation that is too dangerous to continue working.

The probability of Project vessels encountering extreme weather is **Remote**, but the consequence is likely to be **Significant.**

13.7 Risk Assessment

In this risk assessment the hazard has been ranked by expected risk, based on the estimated frequency and consequence with no mitigation measures applied creating an 'Inherent Risk' to the Project. The exercise was repeated with compliance mitigation and industry best practice measures which results in a residual risk allowing the hazards to be reduced to ALARP. No hazards more than a **Moderate** risk are present as identified in the risk assessment.

13.7.1 Risk Control

13.7.1.1 Compliance and best practise mitigation

Compliance measures are required to be undertaken to meet environmental and health and safety legislation. When undertaking the assessment, it is assumed that these measures as well as Best Practise Mitigation will be complied with; either as a matter of best practice or to ensure compliance with statute. Compliance and Best Practise Mitigation measures are outlined in Section 4 "Methodology".

13.8 Risk Assessment

Table 13-6 presents the risk assessment conducted on the marine operations and associated hazards. All hazards have reached a risk level tolerable to the Project through the ALARP process.

Navigation Risk Assessment **Cable Route:** **Coll - Tiree**

Risk Assessment: Operation	Hazard	Inherent Risk							Risk Mitigation	Residual Risk						
		Frequency	Consequence			Risk Rating				Frequency	Consequence			Risk Rating		
			Effect on Human Safety	Effect on Ship(s)	Displacement of Vessel(s)	Effect on Human Safety	Effect on Ship(s)	Displacement of Vessel(s)			Effect on Human Safety	Effect on Ship(s)	Displacement of Vessel(s)	Effect on Human Safety	Effect on Ship(s)	Displacement of Vessel(s)
Pre and Post Lay Survey	Presence of Project vessels	4	1	1	2	4	4	8	EM7, EM8, EM13, EM14, EM15, EM19, EM20	3	1	1	2	2	2	6
	Vessel collision	1	5	5	N/A	5	5	N/A		1	5	5	N/A	5	5	3
	Project vessels blocking navigational features	2	1	1	2	2	2	4		2	1	1	2	2	2	4
	Extreme weather conditions	2	2	2	2	4	4	4		2	1	1	1	2	2	2
Route Clearance	Presence of Project vessels	4	1	1	2	4	4	8	EM14, EM17, EM13, EM12, EM19, EM16	3	1	1	1	3	3	3
	Vessel collision	1	5	5	N/A	5	5	N/A		1	5	5	2	5	5	2
	Project vessels blocking navigational features	2	1	1	2	2	2	4		1	1	1	1	1	1	1
	Extreme weather conditions	2	2	2	2	4	4	4		2	1	1	1	2	2	2
Shore end Operations	Presence of project vessels	4	1	1	2	4	4	8	EM14, EM17, EM13, EM12, EM19, EM16	3	1	1	2	3	3	6
	Vessel collision	1	5	5	N/A	5	5	N/A		1	5	5	3	5	5	3
	Project vessels blocking navigational features	2	1	1	3	2	2	6		2	1	1	2	2	2	4
	Fishing interaction with Surface laid cable	2	2	2	2	4	4	4		1	2	2	1	2	2	1
	Accidental anchoring on surface laid cable	2	2	2	2	4	4	4		1	2	2	2	2	2	2
	Extreme weather conditions	2	2	2	2	4	4	4		2	1	1	1	2	2	2
Cable Lay	Presence of Project vessels	4	1	1	2	4	4	8	EM14, EM15, EM17, EM13, EM12, EM19, EM16	3	1	1	1	3	3	3
	Vessel collision	1	5	5	N/A	5	5	N/A		1	5	5	3	5	5	3
	Project vessels blocking navigational features	2	1	1	3	2	2	6		2	1	1	2	2	2	4
	Fishing interaction with Surface laid cable	2	2	2	2	4	4	4		1	2	2	2	2	2	2
	Accidental anchoring on surface laid cable	2	2	2	2	4	4	4		1	2	2	2	2	2	2
	Extreme weather conditions	2	2	2	2	4	4	4		2	1	1	1	2	2	2
Post Lay Inspection	Presence of project vessels	3	1	1	2	3	3	6	EM14, EM15, EM17, EM13, EM12, EM19, EM16	2	1	1	2	2	2	4
	Vessel collision	1	5	5	N/A	5	5	N/A		1	5	5	3	5	5	3
	Project vessels blocking navigational features	2	1	1	2	2	2	4		2	1	1	2	2	2	4
	Fishing interaction with Surface laid cable	2	2	2	2	4	4	4		1	2	2	1	2	2	1
	Accidental anchoring on surface laid cable	2	2	2	2	4	4	4		1	2	2	2	2	2	2
	Extreme weather conditions	2	2	2	2	4	4	4		2	1	1	1	2	2	2
Additional External Cable Protection	Presence of project vessels	4	1	1	2	4	4	8	EM14, EM15, EM17, EM13, EM18, EM12, EM19, EM16	2	1	1	2	2	2	4
	Vessel collision	1	5	5	N/A	5	5	N/A		1	5	5	3	5	5	3
	Project vessels blocking navigational features	2	1	1	3	2	2	6		2	1	1	2	2	2	4
	Fishing interaction with Surface laid cable	2	2	2	2	4	4	4		1	2	2	1	2	2	1
	Accidental anchoring on surface laid cable	2	2	2	2	4	4	4		1	2	2	2	2	2	2
	Extreme weather conditions	2	2	2	2	4	4	4		2	1	1	1	2	2	2

13.9 Conclusion

The average vessel density across the Application Corridor is observed to be high at 10 – 20 vessel hours per km^2. There are localised areas of increased density associated with shipping patterns related to shipping lanes, likely used by ferries, and fishing vessels leaving and entering harbours.

The Application Corridor intersects the Barra (Castlebay) – Tiree (Tiree Harbour) ferry route however the Project will keep Calmac informed on installation activities and timings to ensure that interactions are minimal.

The intensity of recreational boating is low across the Application Corridor. The Application Corridor does not cross any official Traffic Separation Schemes nor interfere with significant navigational features.

Fishing across the Application Corridor is observed to be low throughout the year, with fishing vessel density peaking in May and June (as evident in AIS data). Dominant fishing gear types used within the Argyll area include potting (creeling), trawling and dredging, however, given that there is infrequent recorded evidence of fishing gear interactions with the currently existing Coll - Tiree cable, interactions are unlikely.

The risk assessment has identified that all identified hazards have been reduced to ALARP and, with the relevant best practice measures applied, no hazards exist that are above a moderate risk level. The greatest risk to the existing baseline has been assessed as the displacement of vessels by Project vessels interacting with the existing shipping. Due to all vessels operating in compliance with COLREGs collisions from such displacement are unlikely and the frequency of such an occurrence has been assessed as extremely remote, lowering the overall risk rating. Therefore, no significant impacts to shipping and navigation as a result of the Coll – Tiree cable replacement operation are expected

14. CONCLUSIONS

This MEA supports the Marine Licence Application that SHEPD is submitting for installation activities associated with the replacement cable between Coll and Tiree. This MEA includes an assessment of the potential impacts of the cable installation activities on sensitive receptors (Sections 5-13). Table 14-1 below provides a summary of the assessment findings. As a result of the findings, along with the embedded mitigation and best practice measures detailed in Section 4.2, it can be concluded that activities associated with installation of the replacement cable will not result in any significant effect on any relevant receptor.

Table 14-1 Assessment Summary

Environmental Receptor	Assessment Outcome	Additional Mitigation (Where required)	Overall Impact Significance
Protected Sites (Section 5)	The protected sites assessment has demonstrated that installation activities associated with the cable replacement will not adversely affect the conservation objectives of any designated site within or in the vicinity of the Application Corridor. Any disturbance caused by the installation of the cable will be minor and temporary due to the short-term, localised and temporary nature of the activities.	N/A	No adverse effect to conservation objectives
Seabed and Water Quality (Section 6)	The assessment has determined that the installation and operation of the Coll-Tiree cable will not have adverse effects on seabed integrity or water quality within or around the Application Corridor. Any sediment dispersion resulting from cable installation activities is expected to settle rapidly and become imperceptible within the water column, comparable to natural levels associated with strong tidal and wave action. As the cable will primarily be surface-laid—except for the intertidal area and select sections with sand waves requiring jetting tools—habitat disturbance will be highly localised, confined to the footprint of the cable and any associated infrastructure (e.g., spud legs, rock bags, split pipes, or concrete mattresses, if required). Consequently, no significant impacts on seabed or water quality features are anticipated.	N/A	No adverse effect to conservation objectives
Marine Megafauna	The assessment has determined that the short-term, localised, and transient nature of installation activities, combined with embedded mitigation measures, will		No adverse effect to conservation objectives

Environmental Receptor	Assessment Outcome	Additional Mitigation (Where required)	Overall Impact Significance
	minimize the likelihood of adverse effects on cetaceans, pinnipeds, and basking sharks present within the Application Corridor, even in areas of moderate to high density. Estimated usage includes harbour seals (5–100 individuals per 25 km²), grey seals (10–100+ individuals per 25 km²), and basking shark encounter rates of up to 2 animals per km². Additionally, no significant impacts on otters are anticipated as a result of the proposed operations.		
Benthic and Intertidal Ecology	HOLD	HOLD	HOLD
Ornithology	The assessment has determined that while common eider within the Application Corridor may experience temporary disruption to foraging activities during the Coll-Tiree cable installation, this disturbance will be short-lived, with the species expected to resume normal foraging behaviour immediately after activities cease. Given the short-term, localized, and transient nature of the installation, no significant adverse effects on common eider are anticipated.	N/A	No adverse effect to conservation objectives
Marine Archaeology	One known archaeological feature is located within the Application Corridor, with an additional five features identified within 500m of its boundaries. While there is potential for impacts to the Eriskaig wreck during installation activities at the Tiree landfall, these will be mitigated through careful project design. The assessment has concluded that impacts on known archaeological features in the vicinity of the Application Corridor are unlikely. Therefore, the installation and operation of the Coll-Tiree cable is not expected to result in any significant effects on marine archaeology in the area.	N/A	No adverse effect to conservation objectives
Commercial Fisheries and Other Sea Users	The assessment has determined that the installation and operation of the Coll-Tiree cable will not result in significant effects on commercial fisheries or other sea users within or near the Application Corridor. The Gunna Sound serves as a nursery and spawning ground for commercially		No adverse effect to conservation objectives

Environmental Receptor	Assessment Outcome	Additional Mitigation (Where required)	Overall Impact Significance
	important fish and shellfish. While fishing activity within the corridor is relatively low, the use of mobile fishing gear presents a potential snagging risk associated with the cable or stabilization materials. However, due to the cable's minimal seabed footprint and the availability of alternative fishing grounds, any loss of access is expected to be minor. No impacts on static gear fishing activity are anticipated. The Gunna Sound and surrounding areas also support various other sea users, including recreational boaters, kayakers, and submarines. Any temporary disruption will be mitigated through ongoing communication and the publication of Notices to Mariners (NtMs) to ensure coordination and minimize conflicts. Given the short-term and localised nature of the works, any disruptions will be minor and temporary. As such, no significant impacts on commercial fisheries or other sea users are expected as a result of the Coll-Tiree cable replacement project.		
UXO and Existing Utilities	While there is potential for UXO to be present within the Application Corridor, the risk of encountering UXO during installation has been effectively mitigated through specialist recommendations. These measures include personnel briefings and the implementation of a 15m exclusion zone around any identified potential UXO during the route engineering process, thereby minimizing the risk of interaction with ordnance. The Application Corridor intersects two existing cables—the Coll-Tiree distribution cable and two unidentified OOS cables. As these assets are either owned by SHEPD or no longer in use, no significant effects from installation activities are anticipated.		No adverse effect to conservation objectives
Shipping and Navigation	The average vessel density across the Application Corridor is high, ranging from 10–20 vessel hours per km², with localized areas of increased density associated with established shipping lanes, ferry routes, and fishing vessel movements near		No adverse effect to conservation objectives

Environmental Receptor	Assessment Outcome	Additional Mitigation (Where required)	Overall Impact Significance
	harbours. The Application Corridor intersects the Barra (Castlebay) – Tiree (Tiree Harbour) ferry route; however, ongoing communication and coordination with CalMac will ensure that interactions remain minimal during installation activities. Recreational boating intensity within the Application Corridor is low, and the route does not intersect any official Traffic Separation Schemes or interfere with significant navigational features. Fishing activity is also limited throughout the year, with vessel density peaking in May and June, as indicated by AIS data. The dominant fishing gear types in the Argyll area include potting (creeling), trawling, and dredging, but given the infrequent recorded interactions with the existing Coll-Tiree cable, future interactions are considered unlikely. A detailed risk assessment has determined that all identified hazards have been mitigated to As Low As Reasonably Practicable (ALARP), with no risks exceeding a moderate level. The primary risk identified is the potential displacement of vessels due to project-related shipping activity. However, as all vessels will operate in compliance with COLREGs, the likelihood of collision is extremely remote, minimizing the overall risk rating. Therefore, no significant impacts on shipping and navigation are expected as a result of the Coll-Tiree cable replacement operation.		

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