



New Islay Vessel Port Enabling Works

Kennacraig Habitats Regulations Appraisal

April 2023

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Executive Summary

Mott MacDonald has been commissioned by Caledonian Maritime Assets Ltd to prepare this report to inform a Habitats Regulations Appraisal (HRA) relating to the New Islay Vessel Port Enabling Works at Kennacraig Ferry Terminal. The aim of the report is to establish any likely impacts from the Proposed Development on the United Kingdom (UK) National Network of protected sites, nearby protected areas and the marine species that inhabit the waters. This is so that an informed decision can be made by regulating bodies on the intended Proposed Development and implementation of any suitable mitigation or enhancements where required.

The Proposed Development would upgrade the ferry terminal to facilitate future accommodation of a new vessel with deeper draught and higher displacement. Works primarily consist of the following; upgrading of existing fenders, construction of toe protection, construction of piled wall, installation of new vessel shore power and connections, modification to the existing fixed ramp within the ferry terminal; fabrication and erection of steel grillage at infill pier, dredging, installation of scour protection, and a new longer gangway.

All works are below the mean high water springs (MHWS) with the exception to upgrading existing fenders, new shore power and modification to the existing fixed ramp.

The Proposed Development is located within the Sound of Gigha Special Protected Area (SPA), Tarbert Woods Special Area of Conservation (SAC) and the Inner Hebrides and the Minches SAC were also identified within the zone of influence. Taking into account the type, size and scale of the proposed works, the potential risks include:

- Pollution events
- Underwater and airborne noise and vibration
- Change in turbidity
- Resuspension of contaminants
- Visual disturbance
- Vessel strike
- Introduction and/or Spread of Invasive and Non-Native Species
- Generation of construction dust/ reduction in air quality

Of these, in the absence of mitigation, the proposed works have the potential to give risk to a Likely Significant Effect (LSE) on the features of the designated sites listed above, aside from Tarbert Woods SAC which was screened out as it is sufficiently separated from the works and unlikely to be impacted.

This document describes the HRA for the Proposed Development, including both the Stage 1 Screening and Stage 2 Appropriate Assessment. The Stage 2 Appropriate Assessment also provides the in-combination assessment to understand if the Proposed Development is likely to result in LSE when considered in combination with other plans or projects in the area.

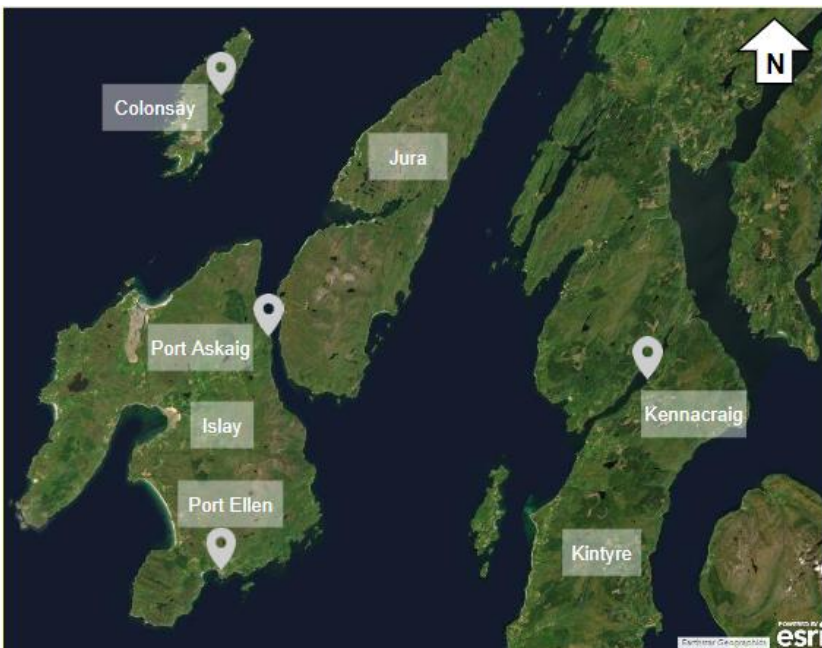
Within the Stage 2 Appropriate Assessment, potential effects on the designated sites were further assessed in context of mitigation measures. It was concluded that when considering mitigation, it is not anticipated for any adverse effect on the integrity of the designated sites and their associated features to occur. No in-combination effects were identified.

1 Introduction

1.1 Project Background

Caledonian Maritime Assets Limited (CMAL) seek to undertake upgrade works at the following four ferry terminals (Port Ellen, Kennacraig, Port Askaig and Colonsay (shown in Figure 1.1)) on the Islay route prior to the introduction of new vessels, which are planned to be operational around mid-2024.

Figure 1.1: Terminals on the Islay Ferry Service



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The new vessels are planned to have a larger beam, length, draught and displacement than the current vessels that serve the route, as well as having a hybrid diesel-electric propulsion system. Enabling works to the four terminals are therefore necessary to safely and reliably berth, moor, load and unload the vessels at all four ports together with shore power for charging the vessels at Port Ellen, Kennacraig and Port Askaig.

The focus of this HRA is New Islay Vessel Enabling Works at Kennacraig Ferry Terminal, which would comprise upgrading existing fenders, construction of a piled wall and toe protection at existing secant pile walls, fabrication and erection of steel grillage, dredging, installation of new scour protection and new vessel shore power along with connections, and modification to the existing fixed ramp and a new gangway. Further details are outlined in Section 2. These works will hereafter be referred to as the 'Proposed Development'.

1.2 Location

Kennacraig Ferry Terminal is situated on West Loch Tarbert, 5 miles south west of Tarbert on the Kintyre peninsula, Argyll and Bute, in the west of Scotland centred at National Grid Reference (NGR) NR 81759 62531. The terminal currently serves the larger mainland ferries from the south berth, while a smaller fixed ramp slipway is situated to the north of the pier.

1.3 Purpose of this Document

The purpose of this HRA is to establish whether the Proposed Development will affect the integrity of European sites that are part of the United Kingdom (UK) National Network of protected sites, nearby protected areas and the marine species that inhabit the waters. This is so that an informed decision can be made by regulating bodies on the Proposed Development and implementation of any suitable mitigation or enhancements where required.

This report therefore documents the assessment of the potential for effects of the Proposed Development on European Sites as required by Regulation 48 of The Conservation (natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019. The process followed is described in Appendix A.

2 Proposed Development Information

2.1 Proposed Development

The Proposed Development would upgrade the ferry terminal to facilitate future accommodation of a new vessel with deeper draught and higher displacement. Works primarily consist of the following:

- Upgrading of existing fenders including breaking concrete at one location;
- Construction of toe protection to support secant pile walls;
- Construction of piled wall;
- Installation of new vessel shore power and connections;
- Modification to the existing fixed ramp within the ferry terminal;
- Fabrication and erection of steel grillage at infill pier;
- Dredging of the seabed by backhoe dredger and barge. Area to be dredged will be approximately 6,894m³;
- Installation of scour protection; and
- A new longer gangway.

All works are below the mean high water springs (MHWS) with the exception to upgrading existing fenders, new shore power and modification to the existing fixed ramp.

2.2 Construction Operations

2.2.1 Construction Method

2.2.1.1 Upgrading fenders, modification of ramp and installation of vessel shore power and gangway

To upgrade the fenders, a crane, construction operatives and any other equipment (e.g. welding machines where required) will be supported on the existing structure (jetty deck) for access to the fenders. Materials will comprise fenders (rubber fenders, UHMW-PE panels and stainless steel fixings) and, where required, steel brackets and beams for connection to the existing structure.

For modification of the existing ramp and where concrete requires breaking, a barge pontoon, excavator and pecker/breaker would be used. A single cut will be made in the existing concrete capping to form a clean break line. An excavator hydraulic pecker attachment will be used to break out the concrete. Netting and/or pontoon will be positioned beneath the area of concrete being broken out.

2.2.1.2 Dredging

Dredging would be undertaken around Kennacraig Ferry Terminal as shown in Appendix B. Dredging works would likely be undertaken either by a backhoe dredger only or by a trailer suction hopper dredger working in conjunction with a backhoe dredger (for areas of the structures which are inaccessible by trailer suction hopper). If required, bedrock would be pre-fractured by drilling and splitting using Cardox (a CO₂ driven hydraulic breaker). Non-explosive blasting methods would be used.

Dredging Process (backhoe dredger)

The spuds extend to the seabed and provide lateral resistance and stability for the pontoon (Figure 2.1). The dredged material will be loaded into a split hopper barge (SHB) (

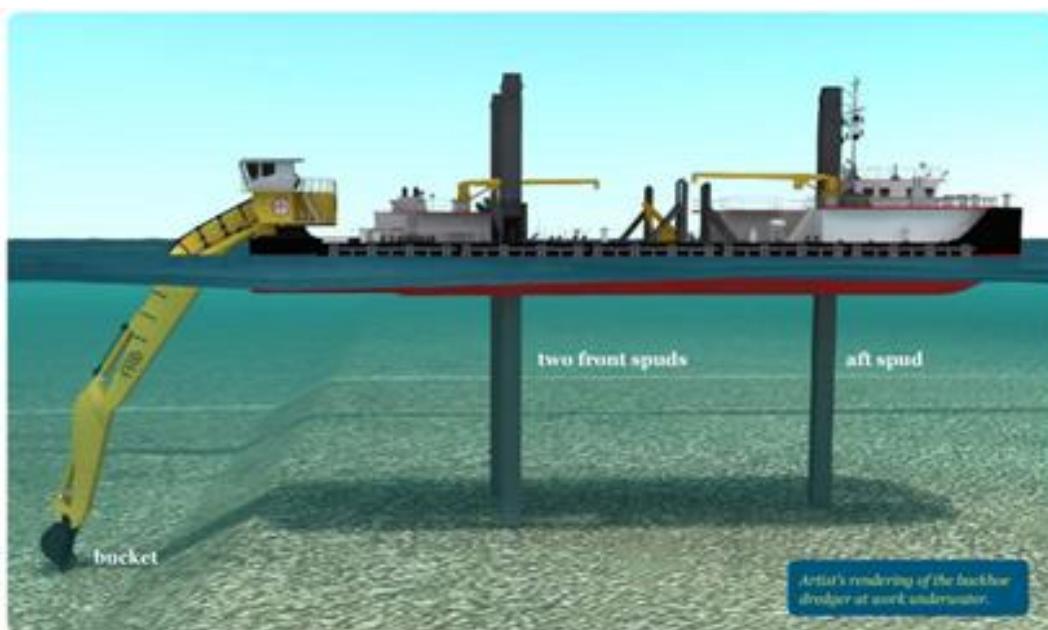
Figure 2.2) . SHB are the self-propelled barges, which transport the dredged material once loaded by the backhoe dredger to the assigned disposal area.

The dredging process consists of:

1. Digging and filling the bucket;
2. Lifting the bucket;
3. Swinging towards the SHB;
4. Emptying the bucket into the SHB;
5. Swinging towards the next digging location;
6. Lowering the bucket;
7. Positioning at the next digging location; and
8. Digging and filling the bucket.

The excavator is located above the dredged face and digs towards itself, in an upward motion, to fill the bucket. With the pontoon positioned in one location, the excavator covers an area along an arc. The arc length depends upon the length of boom and stick.

Figure 2.1: Backhoe Dredger Example



Source: Backhoe Dredging (graphic sourced at International Association of Dredging Companies, 2016 <https://www.iadc-dredging.com/wp-content/uploads/2016/07/facts-about-backhoe-dredgers.pdf>)

Figure 2.2: Backhoe Dredger Example



Source: Backhoe Dredging onto SHB (graphic sourced at International Association of Dredging Companies, 2016 www.iadc-dredging.com)

Dredging Process (Trailer Suction Hopper Dredger)

Trailer suction hopper dredgers are equipped with one or two suction pipes ending in drag heads. The drag head moves slowly over the bed collecting the sand like a giant vacuum cleaner. The mixture of sand and water is pumped into the hopper of the dredging vessel. Excess water flows out through so-called overflows. Dredging stops when the maximum hopper capacity is reached.

Carbon Dioxide Fracturing

Where the rock cannot be dredged, the bedrock may need to be pre-fractured by drilling and splitting using Cardox. These are liquid carbon dioxide filled tubes are inserted into pre-drilled boreholes and energized with a small electrical charge. Carbon dioxide is instantly converted to gas and the pressure increase is discharged at the end of the tube. The rock mass splits along planes of weakness in the rock mass.

Disposal

The transportation of material from the dredged areas to the disposal area is by means of self-propelled SHB. On board the barges, a barge report is completed for each load, specifying date, shift, load number, departure time from dredger and unloading location.

It is anticipated that any disposal at sea would be undertaken at the nearest licenced disposal site. The closest licenced disposal sites is approximately 60km west of the Proposed Development, on the south side of the Island of Islay (Portnahaven - Site ID MA035 south of Port Wemyss). Further details of the disposal options which were considered are included in the Best Practicable Environmental Options (BPEO) Report.

2.2.1.3 Piling, Toe Protection and Scour Protection

Piling

For sheet piles, the temporary frame guide beam will be fixed at survey lines to ensure verticality and alignment of sheet piles. The guide frame will likely consist of vertical end members (legs) along with two I-beams that will be fixed horizontally, with a gap provided between their faces to allow for pitching of the sheet piles. Then, vibratory hammer's clutches will pitch the sheet pile and lift it up by crawler crane. The sheet piles will be attached to a safe line which features a release shackle attachment. The sheet pile will then be pitched down by the vibration force of the hammer.

Bored piles would be installed through the following sequence:

1. Casing installation with the rotary drive of the drill rig
2. Drilling with bucket, auger, or core barrel. Stabilisation of the wall of the bore partially with casings.
3. Installation of reinforcement cage with the auxiliary winch of the drill rig (or alternatively with a separate service crane) into the borehole.
4. Concrete pour via tremie method. The required top of concrete (calculated as per the top level of casing given by the surveyor) will be monitored using an end-weighted scale. The quantity of concrete may be increased in order to fill the space created by the insertion of the casing.
5. Extract casing with the rotary drive. The extraction will be done by rotating the casing gradually in a clockwise and counterclockwise direction until the casing has been completely removed. The casing can be removed once the concreting has been completed.

Toe Protection

The proposed dredging has the potential to undermine the toes of some of the pier support piles and fender piles. As such, protection around existing piles would be undertaken through placement of structural collars around the toes of the piles with dowels into the bedrock below the piles or concrete mattress to replace the overburden on the pile toe. The collar protections would likely be installed prior to any dredging close to the piles.

The installation method for steel collars is likely to be as follows:

- Works for the collars would be carried out by divers;
- Removal of seabed material locally around the pile until sound bedrock is exposed;
- Bedrock is to be prepared to accommodate the steel collar which would act as a permanent formwork and the installation of dowel bars;
- The void between the pile and the steel collar would be infilled with concrete; and
- Works for the collars would be carried out by divers.

Scour Protection (Concrete Mattress)

The installation method for concrete mattress is likely to be as follows:

- Works for the mattress would be carried out by divers;
- Removal of seabed material locally around the pile to anticipated dredge level;
- Fabric formwork is to be positioned around the pile to replicate the lost overburden due to dredging;
- The diver(s) in the water will zip together two adjacent mattress formworks before either are filled;
- Once the formwork is positioned and sealed, filling then commences by pumping the concrete from above water through filling tubes; and
- A secondary tube is provided to permit air/water to be released from the formwork during filling.

2.2.2 Working Hours

Working hours are anticipated to be 24 hours each day, Monday to Sunday to accommodate dredging works and minimise disruption to the existing ferry service through allowing some dredging works to be undertaken overnight. However, piling works will be restricted to the hours between 08:00-1800 Monday to Friday and 08:00-13:00 Saturday. No piling works would be undertaken on Sunday.

2.2.3 Deliveries and Transportation of Materials, Plant and Equipment to Site

Deliveries including the transport of materials, plant, and equipment to the Proposed Development will only take place during the following hours:

- 07:00 to 18:00 on Monday to Friday; and
- No deliveries on Saturdays, Sundays or Bank Holidays and local Public Holidays. To reduce disruption to local roads networks.

Site access will typically be via road, i.e. wagon haulage. However, it is possible that some material may be transported by sea, e.g. by barge or ship.

Construction transport is expected to use local roads within the vicinity and it is anticipated that one delivery per week during the construction works would be required.

2.2.4 Storage of Materials

Materials to be used on site would likely be stored within the hardstanding of a temporary site compound, located at NGR NR 81960 62579 within the existing harbour area currently used as a car park. Following contract award this would be further determined by the Principal Contractor.

2.2.5 Programme

It is anticipated that construction would start in September 2023 and end in approximately May 2024 dependent on weather conditions and planned downtime.

2.3 Operational and Decommissioning Phase

There are no planned changes to the operational phase expected after the construction works nor are there plans to decommission in the future as part of the Proposed Development. No significant changes in traffic are expected.

3 Assessment Methodology

3.1 Assessment Methodology

The Proposed Development is detailed in Section 2 has been reviewed following the regulations and process outlined in Appendix A. This information has been reviewed as a desk based assessment to determine whether it is considered that LSE will arise on any designated sites or their associated features which could potentially lead to an adverse effect on the integrity of that site.

3.1.1 Supporting Information

Data was collected from desk sources such as Magic and also through wintering wetland bird surveys that were undertaken between November 2022 and February 2023. The results of the wintering bird surveys are summarised in Section 5.1.1 and provided in full in Appendix C.

3.1.2 Data Evaluation

In undertaking this HRA, relevant information gathered informed the identification of:

- Potential effects resulting from the Proposed Development based upon publicly available research of established effects or examples from past construction within industry;
- The Zone of Influence (Zol) of the potential effects. It should be noted that ZOIs may extend some distance from the site itself, it is not confined to activities on or adjacent to the site. To confirm any potential effects, underwater noise and dispersion modelling has been undertaken in to identify the potential scale of construction effects;
- Any Special Protection Areas (SPA)/ Special Areas of Conservation (SAC) / potential Special Protection Areas (pSPA)/ candidate Special Areas of Conservation (cSAC) / Ramsar sites, including any marine or marine elements of these sites within the potential Zol, and any known areas of land outside the site boundary itself, which plays an important role in supporting the site and its features of interest (functionally linked land);
- The features of interest of the designated site(s) in question;
- The conservation objectives of the designated site, including any site sensitivities given within any supplementary advice, site improvement plan, or equivalent document published by the relevant nature conservation body; and
- Any viable pathways for the Proposed Development to the receptor (designated site itself or functionally linked land).

An underwater noise assessment has been conducted (document reference: 105612-MMD-00-ZZ-RP-O-0004-S2-P01-NIV) and a sediment dispersion model have been conducted (document reference: 105612-MMD-KE-ZZ-RP-O-0007-S2-P01). The underwater noise modelling and sediment dispersion modelling result are used to identify scale of construction effects.

3.1.3 Identification of Designated Sites to be Included

The Proposed Development works have potential to impact on ecological features such as habitats and/or species beyond the confines of the boundary of the Proposed Development itself. A Zone of Influence (Zol) has been used to define the study area for this screening assessment and the potential impacts on designated sites are defined as:

- Areas where there is physical disturbance to designated sites and/or their designated interest features;
- Areas where there will be land take and habitat removal for the works;

- Areas where there is risk of altering the hydrodynamic regime;
- Areas where there is risk of an increase in noise, air and light pollution; and
- Areas where there is a risk of reduction of water quality.

The Zol for the Proposed Development has been defined using guidance provided by Chartered Institute of Ecology and Environmental Management¹ and has been informed using professional judgement. The Zol used for this assessment and their justification are outlined in Table 3.1 and presented in Appendix B.

Table 3-1: Zone of Influence (Zol) for the Proposed Development

Zol	Type of Site	Justification
2km	Designated sites	All designated sites within 2km are identified for the effects of visual disturbance and noise (airborne).
10km	Hydrologically connected sites	Distance at which waters normally circulate from the site has been calculated rounded the air distance to reach open sea from Kennacraig harbour that it is considered that given the nature of the loch it is assumed that any deleterious substance would have most impact within the narrows of the loch until it reached the open coast. It is considered that this distance covers the potential maximum dispersion in the event that any deleterious substances should enter the water.
15km	Underwater noise propagation (hydrologically connected)	Based on the use of a pin piling structure installation, this is the effective deterrence radius ² for cetaceans as suggested by the JNCC, which is being considered a highly conservative proxy for diving birds ¹ . Many of the sources are highly directional but several of these systems can propagate longer distances.

¹ CIEEM, 2018. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.2. Winchester: Chartered Institute of Ecology and Environmental Management.

² JNCC (2020). Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (England, Wales & Northern Ireland)

4 Stage 1: Screening

4.1 Designated Sites requiring Assessment

The designated sites identified as being within the Zol (defined in Section 3.1.3) are outlined in Table 4-1 below and their location in proximity to the Proposed Development is presented in Appendix B. These sites will be included for Stage 1 screening.

Table 4-1 Designated sites within the Zol that are required for screening

Designated Site	Approximate Distance and Direction from Proposed Development	Qualifying Features / Descriptions
Sound of Gigha SPA	Within footprint of the Proposed Development	<p>The site qualifies under Article 4.1 (of EC Directive 79/409 on the Conservation of Wild Birds) by regularly supporting a wintering population of European importance of the following Annex 1 species:</p> <ul style="list-style-type: none"> • Great northern diver <i>Gavia immer</i> (for the years 2004/05 to 2007/08) a mean peak annual wintering population of 505 individuals (20.2% of the GB population). • Slavonian grebe <i>Podiceps auritus</i> (for the years 2008/09 to 2012/13) a mean peak annual wintering population of 37 individuals (3.4% of GB population). <p>The site further qualifies under Article 4.2 by regularly supporting populations of European importance of the following migratory species:</p> <ul style="list-style-type: none"> • Common eider <i>Somateria mollissima</i> (for the years 2004/05 to 2007/08) a mean peak annual wintering population of 1,295 individuals (2.2% of the GB population). • Red-breasted merganser <i>Mergus serrator</i> (for the years 2004/05 to 2007/08) a mean peak annual wintering population of 117 individuals (1.4% of the GB Population).
Tarbert Woods SAC	1.8km south-west	<p>Annex I habitats that are the primary reason for selection of this site:</p> <ul style="list-style-type: none"> • Old sessile oak woods with Ilex and Blechnum in the British Isles
Inner Hebrides and the Minches SAC	8.1km south-west	<p>Annex II species that are the primary reason for selection of the site:</p> <ul style="list-style-type: none"> • Harbour Porpoise <i>Phocoena phocoena</i>

4.2 Conservation Objectives

The screening for the LSE considers the implications of the Proposed Development in view of the Conservation Objectives for the three designated sites screened in. An overview of the objectives and links to the conservation objectives documents for each designated site are shown in Table below:

Table 4-2: Conservation Objectives for each Designated Site within the ZoI

Site Name	Main Objectives
Sound of Gigha SPA https://sitelink.nature.scot/site/10486	<ol style="list-style-type: none"> 1. To ensure that the qualifying features of Sound of Gigha SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status. 2. To ensure that the integrity of Sound of Gigha SPA is maintained in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature: <ol style="list-style-type: none"> a. The populations of the qualifying features are viable components of the site. b. The distributions of the qualifying features throughout the site are maintained by avoiding significant disturbance of the species. c. The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained
Tarbert Woods SAC https://sitelink.nature.scot/site/8390	<ol style="list-style-type: none"> 1. To ensure that the qualifying feature of Tarbert Woods SAC is in favourable condition and makes an appropriate contribution to achieving favourable conservation status. 2. To ensure that the integrity of Tarbert Woods SAC is restored by meeting objectives 2a, 2b and 2c for the qualifying feature. <ol style="list-style-type: none"> a. Maintain the extent and distribution of the western acidic oak woods habitat within the site; b. Restore the structure, function and supporting processes of the western acidic oak woods habitat; and c. Restore the distribution and viability of typical species of the western acidic oak woods habitat.
Inner Hebrides and the Minches SAC https://sitelink.nature.scot/site/10508	<ol style="list-style-type: none"> 1. To ensure that the Inner Hebrides and the Minches SAC continues to make an appropriate contribution to harbour porpoise remaining at Favourable Conservation Status. 2. To ensure for harbour porpoise, within the context of environmental changes, that the integrity of the Inner Hebrides and the Minches SAC is maintained through 2a, 2b and 2c: <ol style="list-style-type: none"> a. Harbour porpoise within the Inner Hebrides and the Minches SAC are not at significant risk from injury or killing. b. The distribution of harbour porpoise throughout the site is maintained by avoiding significant disturbance. c. The condition of supporting habitats and the availability of prey for harbour porpoise are maintained.

4.3 Assessments of Impact Pathways

The Proposed Development is located within the Sound of Gigha SPA, Tarbert Woods SAC is within 1.8km of the Proposed Development, and hydrologically connected to the Inner Hebrides and the Minches SAC.

There are a variety of potential impact pathways and sources of disturbance from the Proposed Development that could affect the two sites screened into the assessment. These are outlined below in Table .

Table 4-3: Activities with the Potential to Impact Designated Sites

Aspect of Project / Impact	Receptors Potentially Impacted	Description of Potential Effect
Construction Phase		
Pollution event	<ul style="list-style-type: none"> ● Inner Hebrides and the Minches SAC <ul style="list-style-type: none"> – Harbour Porpoise <i>Phocoena phocoena</i> ● Sound of Gigha SPA <ul style="list-style-type: none"> – Great northern diver <i>Gavia immer</i> – Slavonian grebe <i>Podiceps auritus</i> – Common eider <i>Somateria mollissima</i> – Red-breasted merganser <i>Mergus serrator</i> ● Tarbert Woods SAC <ul style="list-style-type: none"> – Old sessile oak woods with Ilex and Blechnum in the British Isles 	During construction and in the absence of mitigation, there is the potential for a pollution event to occur. Potential pathways could comprise the use of plant and machinery in and adjacent to the marine environment (fuel spills) and spills of concrete or other hazardous substances. Depending on the size and scale of the spill there is the potential for far-reaching impacts if this was to occur in the marine environment. Impacts from these on designated features could be direct (toxicity) or indirect (death of prey or supporting habitat).

Aspect of Project / Impact	Receptors Potentially Impacted	Description of Potential Effect
Construction Phase		
Underwater noise and vibration	<ul style="list-style-type: none"> ● Inner Hebrides and the Minches SAC <ul style="list-style-type: none"> – Harbour Porpoise <i>Phocoena phocoena</i> ● Sound of Gigha SPA <ul style="list-style-type: none"> – Great northern diver <i>Gavia immer</i> – Slavonian grebe <i>Podiceps auritus</i> – Common eider <i>Somateria mollissima</i> – Red-breasted merganser <i>Mergus serrator</i> 	Dredging activities are proposed to take place. This would result in the generation of underwater noise and vibration and impact on designated features present. Underwater noise can result in temporary and permanent hearing loss (TTS and PTS) for marine mammals, causing behavioural changes and issues with navigation that can lead to displacement ^{3,4} . There could also be indirect impact on fish, larvae and eggs; underwater noise has been shown to adversely affect fish larvae and egg mortality and development ⁵ .
Airborne noise and vibration	<ul style="list-style-type: none"> ● Sound of Gigha SPA <ul style="list-style-type: none"> – Great northern diver <i>Gavia immer</i> – Slavonian grebe <i>Podiceps auritus</i> – Common eider <i>Somateria mollissima</i> – Red-breasted merganser <i>Mergus serrator</i> 	<p>All designated species listed are considered to be highly mobile and could be present within the Proposed Development area, as a result airborne noise generated during construction (installation of pile toe reinforcement, replacement of fenders and bollards, dredging) could impact on any designated features that may be present.</p> <p>Airborne noise and visual presence will likely impact on bird species and (dependent on the time of year) this can result in birds using additional energy in the breeding or moult season to escape the area which can have adverse effects associated⁶.</p>
Visual disturbance	<ul style="list-style-type: none"> ● Sound of Gigha SPA <ul style="list-style-type: none"> – Great northern diver <i>Gavia immer</i> – Slavonian grebe <i>Podiceps auritus</i> – Common eider <i>Somateria mollissima</i> – Red-breasted merganser <i>Mergus serrator</i> 	As above for airborne noise, due to the close proximity of the Sound of Gigha SPA, it is possible for visual disturbance to impact on designated features. Lighting during construction could also have a visual impact, displacing resting/roosting species.
Changes to water quality (changes in turbidity)	<ul style="list-style-type: none"> ● Inner Hebrides and the Minches SAC <ul style="list-style-type: none"> – Harbour Porpoise <i>Phocoena phocoena</i> ● Sound of Gigha SPA 	Birds that rely of the sea for feeding could be directly and indirectly impacted by increases in turbidity during dredging works from a reduction in feeding ability and indirectly through impacts to their prey. Harbour porpoise are able to forage in turbid waters however, indirect impacts of increased turbidity can

³ Thompson, et al. (2013). Framework for assessing impacts of pile-driving noise from offshore wind farm construction on a harbour seal population. Environmental Impact Assessment Review, 43, 73-85.

⁴ National Marine Fisheries Service (2018). Revisions to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. NOAA, US Department of Commerce, NOAA. NOAA.

⁵ Weilgart, L. (2018). The impact of ocean noise pollution on fish and invertebrates. Report by Oceancare & Dalhousie University. 36page. Available from: https://www.oceancare.org/wp-content/uploads/2017/10/OceanNoise_FishInvertebrates_May2018.pdf.

⁶ Therrien, S.C., 2014. *In-air and underwater hearing of diving birds* (Doctoral dissertation) [Online] Available at: [In-air and Underwater Hearing of Diving Birds \(umd.edu\)](https://umd.edu)

Aspect of Project / Impact	Receptors Potentially Impacted	Description of Potential Effect
Construction Phase		
	<ul style="list-style-type: none"> – Great northern diver <i>Gavia immer</i> – Slavonian grebe <i>Podiceps auritus</i> – Common eider <i>Somateria mollissima</i> – Red-breasted merganser <i>Mergus serrator</i> 	impact on prey through impacts to eggs, larvae and benthic and in faunal communities that support them ⁷ .
Changes to water quality (resuspension of contaminants)	<ul style="list-style-type: none"> • Inner Hebrides and the Minches SAC <ul style="list-style-type: none"> – Harbour Porpoise <i>Phocoena phocoena</i> • Sound of Gigha SPA <ul style="list-style-type: none"> – Great northern diver <i>Gavia immer</i> – Slavonian grebe <i>Podiceps auritus</i> – Common eider <i>Somateria mollissima</i> – Red-breasted merganser <i>Mergus serrator</i> 	Marine species and birds that rely of the sea for feeding could be impacted by suspension of potentially contaminated sediments and resuspension of contaminated sediments. Historically, harbours have been sinks for contaminants from surrounding industry, comprising metals, tributylins, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs and pesticides ⁸ . Impacts resulting from exposure to contaminants could be direct as a result of toxicity and lead to mortality; or indirect, resulting from bioaccumulation from ingesting contaminated prey, or reduction in prey availability. This can be applied to all species listed. There is also some evidence to support that exposure of harbour porpoise to toxic metals can cause immunosuppression ⁹ Conservation and management advice document for the Inner Hebrides and the Minches SAC ¹⁰ outlines contaminants (water quality effects and bioaccumulation) as a threat to harbour porpoise.
Physical harm/ vessel strike	<ul style="list-style-type: none"> • Inner Hebrides and the Minches SAC <ul style="list-style-type: none"> – Harbour Porpoise <i>Phocoena phocoena</i> • Sound of Gigha SPA <ul style="list-style-type: none"> – Great northern diver <i>Gavia immer</i> – Slavonian grebe <i>Podiceps auritus</i> – Common eider <i>Somateria mollissima</i> – Red-breasted merganser <i>Mergus serrator</i> 	Marine vessels will be used to supply material and barges and raft will be used to dispose of the dredge material. Even with reduced speed, which will allow marine mammals to move out the way, an incident may still occur during transit or other manoeuvring. The conservation and management advice document for the Inner Hebrides and the Minches SAC ¹¹ outlines death or injury by collision with various fast moving vessels as a threat to harbour porpoise. As a result, this will provide a pathway for the potential impact to marine mammals and rafting and diving birds for disturbance and/or physical damage during vessel movements.

⁷ Todd *et al.*, 2015. A review of impacts of marine dredging activities on marine mammals. ICES Journal of Marine Science, 72(2), pp.328-340. [Online] Available at: [review of impacts of marine dredging activities on marine mammals | ICES Journal of Marine Science | Oxford Academic \(oup.com\)](#)

⁸ Knott, N.A., Aulbury, J.P., Brown, T.H. and Johnston, E.L., 2009. Contemporary ecological threats from historical pollution sources: impacts of large - scale resuspension of contaminated sediments on sessile invertebrate recruitment. Journal of Applied Ecology, 46(4), pp.770-781.

⁹ Bennett, P.M., Jepson, P.D., Law, R.J., Jones, B.R., Kuiken, T., Baker, J.R., Rogan, E. and Kirkwood, J.K., 2001. Exposure to heavy metals and infectious disease mortality in harbour porpoises from England and Wales. Environmental pollution, 112(1), pp.33-40.

¹⁰ NatureScot, 2020. Conservation and management advice – Inner Hebrides and the Minches SAC [Online] Available at: [SiteLink \(nature.scot\)](#) Accessed: December 2022

¹¹ NatureScot, 2020. Conservation and management advice – Inner Hebrides and the Minches SAC [Online] Available at: [SiteLink \(nature.scot\)](#) Accessed: December 2022

Aspect of Project / Impact	Receptors Potentially Impacted	Description of Potential Effect
Construction Phase		
Introduction and spread of Invasive Non-Native species (INNS)	<ul style="list-style-type: none"> ● Inner Hebrides and the Minches SAC <ul style="list-style-type: none"> – Harbour Porpoise <i>Phocoena phocoena</i> ● Sound of Gigha SPA <ul style="list-style-type: none"> – Great northern diver <i>Gavia immer</i> – Slavonian grebe <i>Podiceps auritus</i> – Common eider <i>Somateria mollissima</i> – Red-breasted merganser <i>Mergus serrator</i> ● Tarbert Woods SAC <ul style="list-style-type: none"> – Old sessile oak woods with Ilex and Blechnum in the British Isles 	Marine vessels will be used to supply material and barges and raft will be used to dispose of the dredge material. This can potentially lead to the spread of INNS as they can be brought into site on the hull of the vessel, equipment or for example through ballast water transfer ¹² .
Generation of dust/reduced air quality	<ul style="list-style-type: none"> ● Sound of Gigha SPA <ul style="list-style-type: none"> – Great northern diver <i>Gavia immer</i> – Slavonian grebe <i>Podiceps auritus</i> – Common eider <i>Somateria mollissima</i> – Red-breasted merganser <i>Mergus serrator</i> 	Due to the close proximity of the Sound of Gigha SPA, it is possible for restrictions in air quality (e.g. generation of construction dust) to impact on designated features.
Operational Phase		
As outlined above in Section 0 the operational phase will not differ from the existing baseline in terms of maintenance or inspection activities. As a result, no effect of likely LSE is required.		
Decommissioning Phase		
As outlined above in Section 0, there are no plans to decommission the refurbished assets in the future as part of the Proposed Development. Therefore, there is no decommissioning phase and no effects from decommissioning are assessed. If this changes in the future, then a separate HRA will need to take place for any decommissioning works.		

¹² Keller, R.P., Drake, J.M., Drew, M.B. and Lodge, D.M., 2011. Linking environmental conditions and ship movements to estimate invasive species transport across the global shipping network. *Diversity and Distributions*, 17(1), pp.93-102.

4.4 Screening for Likely Significant Effects

The designated sites, designated features and associated supporting species or habitat identified within the Zol (see Table 4-1) have been assessed against the activities listed as having the potential to result in impacts (see Table 4-3) to establish whether there is potential for LSE to occur. This screening for LSE is outlined below in Table 4-4. As per above, only the construction phase is considered in this screening for LSE, as no difference in existing activities are planned in the operational phase and no decommissioning is planned. Any impacts that are identified as having potential LSE on designated features will be taken through to the Stage 2 Appropriate Assessment to establish whether the impacts will affect the integrity of the designated sites.

Table 4-4: Screening for LSE

Designated site	Designated features	Potential impact	LSE identified (✓ or X)	Justification
Sound of Gigha SPA	<ul style="list-style-type: none"> ● Great northern diver ● Slavonian grebe* ● Common eider ● Red-breasted merganser* <p>*present in significant numbers, meeting 1% threshold levels.</p>	Vessel strike	✓	Dredgers and other support vessels will be used during construction and even with reduced speed, which would allow wintering birds to move out the way, an incident may still occur during transit or other manoeuvring to diving and rafting birds.
		Introduction and spread of Invasive Non-Native species (INNS)	✓	It is possible that if INNS were introduced to the works area and mitigation was not in place, some of these may spread throughout the marine and terrestrial environment where they can outcompete native species already established on site. This could lead to changes in ecosystem structure, changing functionality of habitats on site on which designated species are reliant upon. Thereby causing indirect effects in affecting the prey of designated species.
		Pollution event	✓	Water pollution is highlighted as a possible threat to this SPA as the supporting habitat is mentioned in the conservation objectives. The works are taking place within the SPA, meaning if a spill was to occur and no mitigation was in place, this could directly enter the sea. However, any spills from the proposed works are likely to be minor in nature. However, localised spills could result in adverse effects directly or indirectly (on the nearby habitat and on prey availability), this could impact wintering birds. Direct impacts could comprise injury or mortality (e.g. from fuel spills) or from bioaccumulation (affecting survival and productivity rates). Great northern divers are considered to be highly sensitive to oil spills (In wintering >0.9 and summer >0.8). Slavonian grebe are considered high sensitivity (In both summer and winter >0.7) and Eider is considered medium sensitivity (>0.6 in both summer and winter). Red-breasted merganser is considered low sensitivity (>0.3 in both summer and winter)..
		Underwater noise	✓	The impact of underwater noise can affect the behaviour of wintering birds and cause disturbance; This could cause displacement from the area due to underwater noise; disturbance from the proposed works; and disruption of prey or prey habitats. Underwater noise can potentially cause temporary and permanent hearing loss for birds which can impact on navigation, communication and feeding abilities. Furthermore, underwater noise can impact predator avoidance and communication with offspring. All species of diving

Designated site	Designated features	Potential impact	LSE identified (✓ or X)	Justification
				birds designated for the area are sensitive to underwater noise, especially Red-breasted merganser and Eider ducks that were specified as having medium sensitivity ¹³ .
	Airborne noise and vibration		✓	Piling and dredging activities have the potential to result in , <i>'moderate'</i> levels of disturbance to wintering waterbirds at distances of up to 430m ¹⁴ from the works (noise source). Noise disturbance events can affect wintering birds directly, by displacing them from key foraging grounds and causing flee responses. Displacement from preferred feeding areas may have an adverse effect by being energetically expensive to individuals, particularly diving birds, where the feeding activity is physically depleting. This can have an impact on energy budgets and survival rate, with the potential to reduce overall population numbers.
	Changes to water quality (changes in turbidity)		✓	Dredging works are taking place within the SPA and spoil from works on land may enter the waterbody if not mitigated properly, increasing turbidity. This could impact both the foraging ability of the designated features and their prey species.
	Changes to water quality (resuspension of contaminants)		✓	During dredging there is the potential for previous contaminants to be released into the water column that were confined to the sediment. Indirect impacts from suspension of contaminants could impact on water and prey quality, reducing food availability. Also, bioaccumulation resulting from ingestion of contaminated prey could result in mortality. This could also result in health issues.
	Generation of dust/reduced air quality		X	In the absence of mitigation, it is possible for localised reductions in air quality (e.g. generation of construction dust) to impact on designated species in the vicinity of the. However, birds will be assumed absent from the immediate works area works (and the potential areas affected by dust/air quality) due to other potential impacts that will be occurring (i.e. airborne noise and visual disturbance).
	Visual disturbance		✓	Individual birds which regularly frequent the waters adjacent to the ferry terminal in winter months are highly likely to be habituated to normal port operations (including scheduled ferry movements and the regular presence of cars, lorries and pedestrians.) However, the works will involve the movements and use of different types of vessels including a backhoe dredger and other support boats, and will lead to

¹³ Email communication with Argyll Area Officer – Marine, NatureScot. Subject: “RE: Consenting Advice Enquiry - Mott MacDonald - New Islay Vessel Port Enabling Works Project”. Dated 18/05/2022 13:05.

¹⁴ Calculated using the *Waterbird Disturbance Mitigation Toolkit: Informing Estuarine Planning & Construction Projects (Cutts et al. (2013) Version 3.2, March 2013)*. Noise levels below 55dBLAeq are considered 'unlikely to cause response in bird using the fronting intertidal area'. A noise level of below 72dBLAeq but above 55dBLAeq is considered to be the range in which 'moderate noise disturbance is typified' for some birds. The distance from the construction noise source to the 72dBLAeq and 55dBLAeq noise contours has been calculated based on the following sound levels: Vibro-driven sheet piles (88dBA at 10m), Dredging by backhoe (69dBA at 10m).

Designated site	Designated features	Potential impact	LSE identified (✓ or X)	Justification
				changes in the type and frequency of visual disturbance from normal operations (i.e increase in construction vehicles and personnel). This could result in the displacement of individuals from feeding and roosting areas. Hence, the works are likely to give rise to visual disturbance on wintering birds, if present during the construction phase.
Tarbert Woods SAC	<ul style="list-style-type: none"> Old sessile oak woods with Ilex and Blechnum in the British Isles 	Introduction and spread of Invasive Non-Native species (INNS)	X	It is possible that if INNS were introduced to the works area and mitigation was not in place, some of these may spread throughout the marine environment where they can outcompete native species already established on site. However, as this SAC is terrestrial, it is unlikely marine INNS could impact the designated features of this site.
		Vessel strike	X	As the works are not located in this site, there is no pathway for effect.
		Pollution event	X	Water pollution is less likely to be significant as only a small proportion of the wood is exposed to the marine waters and they are unlikely to draw from the salt water.
		Underwater noise	X	As the Proposed Development is not located within this site, and the site is designated for its flora/habitats there is no pathway for effect.
		Airborne noise	X	As the works are not located in this site, there is no pathway for effect.
		Changes to water quality (resuspension of contaminants)	X	Changes in water quality are less likely to be significant as only a small proportion of the wood is exposed to the marine waters and they are unlikely to draw from the salt water.
		Changes to water quality (changes in turbidity)	X	As above, therefore no pathway of impact has been identified.
		Generation of dust/reduced air quality	X	The works are not located in this site, and are too distant from the works to be impacted by dust generated. In addition, site traffic is not expected to be significantly greater than baseline as using established A roads and/or ferry deliveries (See Section 2.2.3).
		Visual disturbance	X	As the works are not located in this site and is designated for its habitats, there is no pathway of effect.
Inner Hebrides and the Minches SAC	<ul style="list-style-type: none"> Harbour porpoise 	Introduction and spread of Invasive Non-Native species (INNS)	✓	It is possible that if INNS were introduced to the works area, they could spread to those areas hydrologically connected and, if mitigation was not in place, some of these may spread throughout the marine and terrestrial environment where they can outcompete native species already established on site. This could lead to changes in ecosystem structure, changing functionality of habitats on site on

Designated site	Designated features	Potential impact	LSE identified (✓ or X)	Justification
				which designated species are reliant upon. Indirect effects may also arise through affecting the prey of designated species.
		Vessel strike	✓	Harbour porpoise is highly mobile therefore, despite the distance from the Proposed Development (8.1km) there is the potential for individuals to be present within the works area. Vessels will be utilised during construction and even with reduced speed, which will allow marine mammals to move out the way, an incident may still occur during transit or other manoeuvring. It is considered unlikely that the continuous presence of a vessel manoeuvring over the area will disturb fish however this cannot be completely ruled out. This may cause indirect stress to the predators if they move to an area with reduced food availability. The frequency of vessel collisions with harbour porpoise is considered to be noticeable at generally local scales relative to harbour porpoise populations, although not the most common cause of mortality ¹⁵ .
		Pollution events	✓	Water pollution is highlighted as a possible threat to this SAC as the supporting habitat is mentioned in the conservation objectives. Although the works are located 8.1km from the Proposed Development, the SAC is considered hydrologically connected and with highly mobile features; meaning if a spill was to occur and no mitigation was in place, this could directly enter the sea. It is not considered that any spills associated with the works would be of a nature large enough to greatly impact the SAC. However, localised spills could result in adverse effects on the nearby habitat and on prey availability, this could impact harbour porpoise.
		Underwater noise	✓	As above, although the works are separated from the SAC, its features are highly mobile and could be present within the works area. The impact of noise and vibration can affect the behaviour of marine mammals and cause disturbance; This can result in temporary threshold shift (TTS), permanent threshold shift (PTS) and in severe cases, death. The Proposed Development involves construction within the marine environment and without mitigation in place, this is likely to generate large volumes of underwater noise and vibration, which may be impulsive in nature.
		Airborne noise disturbance	X	No impact pathway was identified from airborne noise disturbance on harbour porpoise as airborne noise is minimised when it changes between mediums (air to water).
		Changes to water quality (changes in turbidity)	✓	As above, harbour porpoise could be present in the works area. Dredging works and if not mitigated properly, spoil may enter the watercourse which can also increase the turbidity. This could indirectly impact on harbour porpoise through impacts to their prey species.

¹⁵Schoeman, Patterson-Abrolat and Pln, 2020. A global review of vessel collisions with marine animals [Online] Available at: [Frontiers | A Global Review of Vessel Collisions With Marine Animals \(frontiersin.org\)](https://www.frontiersin.org)

Designated site	Designated features	Potential impact	LSE identified (✓ or X)	Justification
		Changes to water quality (resuspension of contaminants)	✓	Indirect impacts from suspension of contaminants could impact on water and prey quality, reducing food availability and suitable habitat. Also, bioaccumulation resulting from ingestion of contaminated prey could result in mortality. This could also result in health issues.
		Generation of dust/reduced air quality	X	As the works are not located in this site, it is unlikely air quality will affect the designated features.
		Visual disturbance	X	As the works are not located in this site, it is unlikely visual disturbance will affect the designated features.

4.5 Stage 1 Screening Summary

Overall potential for LSE were identified for the following:

- Vessel strike:
 - Sound of Gigha SPA
 - Great northern diver
 - Red-breasted merganser
 - Slavonian grebe
 - Common eider
 - Inner Hebrides and the Minches SAC
 - Harbour porpoise
- Introduction and spread of INNS:
 - Sound of Gigha SPA
 - Great northern diver
 - Red-breasted merganser
 - Slavonian grebe
 - Common eider
 - Inner Hebrides and the Minches SAC
 - Harbour porpoise
- Pollution events:
 - Sound of Gigha SPA
 - Great northern diver
 - Red-breasted merganser
 - Slavonian grebe
 - Common eider
 - Inner Hebrides and the Minches SAC
 - Harbour porpoise
- Underwater noise :
 - Sound of Gigha SPA
 - Great northern diver
 - Red-breasted merganser
 - Slavonian grebe
 - Common eider
 - Inner Hebrides and the Minches SAC
 - Harbour porpoise
- Airbourne noise
 - Sound of Gigha SPA
 - Great northern diver
 - Red-breasted merganser
 - Slavonian grebe
 - Common eider
- Changes to water quality (changes in turbidity):
 - Sound of Gigha SPA

- Great northern diver
- Red-breasted merganser
- Slavonian grebe
- Common eider
- Inner Hebrides and the Minches SAC
 - Harbour porpoise
- Changes in water quality (resuspension of contaminants):
 - Sound of Gigha SPA
 - Great northern diver
 - Red-breasted merganser
 - Slavonian grebe
 - Common eider
 - Inner Hebrides and the Minches SAC
 - Harbour porpoise
- Visual disturbance:
 - Sound of Gigha SPA
 - Great northern diver
 - Red-breasted merganser
 - Slavonian grebe
 - Common eider

Despite being able to mitigate for these potential effects, it is a requirement of the HRA process for mitigation to not be taken into consideration during a Stage 1 Screening. Therefore, a Stage 2 Appropriate Assessment is now required to outline what mitigation will be adhered to in order to avoid affecting the integrity of the Sound of Gigha SPA and Inner Hebrides and the Minches SAC as a result of the Proposed Development.

5 Stage 2: Appropriate Assessment

The following sections below sets out the potential effects of the construction phase of the Proposed Development. Considerations are made in terms of potential effects of the Proposed Development alone and also in-combination with other plans and projects in the area. The potential effects are limited to those sites and receptors identified above in Section 4.5 as experiencing potential LSE. Appropriate mitigation measures and any specific mitigation plans that will be implemented to avoid or minimise impacts are detailed within the sections below and assessed when determining whether the Proposed Development has an adverse effect on site integrity. These will be incorporated into an overarching Construction Environment Management Plan (CEMP) for the Proposed Development.

5.1 Sound of Gigha SPA

To provide context of the potential effects on the Sound of Gigha SPA Section 5.1.1 summarises the findings of the wintering bird survey. This is used to assess the potential effects on the integrity of the site detailed in 5.1.2.

5.1.1 Wintering Bird Surveys 2022 / 23

Winter bird surveys were conducted at Kennacraig Ferry Terminal to inform this HRA. Surveys were conducted twice monthly across the core winter period of November 2022 to February 2023. Full details of the surveys are available within a survey report provided in Appendix C.

5.1.1.1 Species Threshold Levels

In order to provide the HRA with quantitative thresholds of significance, the mean peak counts of SPA qualifying features recorded across all 2022/23 survey visits were calculated and assessed against a threshold of 1% of the cited peak winter count numbers of SPA species.

5.1.1.2 Summary of Results

One qualifying feature, red-breasted merganser, was recorded as being present in '*significant*' numbers within the anticipated Zone of Influence (Zoi) of the Proposed Development. A mean of peak counts of 5.75 individuals (4.9% of cited SPA population) was calculated from observations across all survey visits, which is above the 1% significance threshold of 1.1 birds.

No Slavonian grebe were recorded within the survey area during the 2022/23 winter surveys. The desk study data provided by the Argyll Bird Club has provided records of the species presence at Kennacraig Ferry Terminal, with up to six individuals recorded in March 2019. If present within the survey area, six individuals would comprise a significant 16.2% of the estimated SPA population of only 37 individuals.

Great northern diver was recorded within the survey but not in significant numbers. A mean of peak counts of 1.5 individuals was calculated from observations across all survey visits, which is below the 1% significance threshold of 5 birds.

Eider was recorded within the survey area on a single survey and not in significant numbers. The desk study has provided records of low numbers of the species at the ferry terminal, with a peak count of four individuals recorded in November 2021. If present within the survey area, four individuals would comprise only 0.3% of the estimated SPA population of only 1,295 individuals.

5.1.1.3 Conclusions

Using the 1% threshold level as a quantitative measure of the likely presence of significant numbers of SPA qualifying features within the survey area, two species, red-breasted merganser (4.9%) and Slavonian grebe (16.2%), have been assessed as being present or potentially present in numbers during the core winter months of November to February. The other two species designated under the Sound of Gigha SPA, Great northern diver and Eider, were determined to be present though not at significant levels.

5.1.2 Potential Effects

5.1.2.1 Vessel Strike

The risk of vessel strikes is considered unlikely given the high mobility of features, However, on a precautionary basis, the following mitigation measures are recommended, which are in line with the Scottish Marine Wildlife Watching Code (SMWWC)¹⁶:

- Where birds are observed to be rafting¹⁷ the vessel shall avoid driving through the aggregated birds and maintain a 50m separation where practicable and safe to do so.
- Where there are birds situated on the water, the vessel shall maintain a speed below 6 knots where safe to do so.

In addition, Vessels in transit and manoeuvring in coastal waters operating will be within speeds outlined by Maritime and Coastguard Agency's (MCAs) legislation and guidance¹⁸.

The above measures could reduce the probability of incidental collisions occurring between wintering birds and working vessels.

As a result of the above and coupled with the limited number of designated birds observed during the wintering bird surveys, it is considered that the likelihood of a wintering birds being affected is low and that no impact on the integrity of the Sound of Gigha SPA is anticipated from vessel strikes.

5.1.2.2 Introduction / Spread of INNS

The Proposed Development will involve the use of machinery, plant and site works moving throughout the Proposed Development area. If INNS are present on site, this poses the risk of spreading INNS further throughout other areas of the Proposed Development. Additionally, the previous use and locations of the equipment (and personnel) are unknown. Therefore, there is a risk that these will have travelled to the Proposed Development from other sites where INNS are present, potentially introducing INNS to the Proposed Development area. Due to the proposed works being within the SPA, it is possible for INNS to enter the watercourse (e.g., through movement of vessels, plant and machinery) where it could impact on native species.

In order to mitigate for the introduction and/or spread of INNS from the Proposed Development, certain biosecurity protocols need to be adhered to. These include the following:

- Pre-construction walkover surveys to look for presence of existing INNS across accessible areas of the Proposed Development will be undertaken. If identified, the location of INNS will be communicated to site workers and suitable buffers set up around them to avoid potential spread through the site.

¹⁶ NatureScot, 2017 [Online] Available at: [The Scottish Marine Wildlife Watching Code SMWWC | NatureScot](#)

¹⁷ Rafting is a behaviour where birds sit, often in groups, on the water close to their colony or nests.

¹⁸ Maritime and Coastguard Agency, May 2014. Active marine guidance notes (MGNs) [Online] Available at: [Active marine guidance notes \(MGNs\) - GOV.UK \(www.gov.uk\)](#)

- Toolbox talks will be held with site workers to raise the awareness of how to avoid, deal with and identify INNS.
- Production of a marine biosecurity plan which would include measures to reduce/eliminate the risk of introducing or spreading INNS on site. The Principal Contractor's Biosecurity Manager or Environmental Clerk of Works (ECOW) will update and maintain a site-specific marine biosecurity plan. Measures include the following:
 - Sections of the plant that would come into direct contact with the intertidal area (track/wheels) will be thoroughly cleaned before and after use to avoid the spread of any INNS (e.g. wheel washing facilities will be provided).
 - Where possible, existing material will be reclaimed, therefore lowering the risk of the introduction of invasive species. Any brought in material will be bespoke. If this is not possible, it will be ensured that brought in material hasn't been utilised in the marine environment previously. Again, if this is not possible, material brought in will be screened for INNS ahead of its use on site.
 - Vessels will comply with relevant ballast water management requirements including where traveling to the site from outwith UK waters the IMO Ballast Water Management (BWM) Convention 2004, which establishes standards and procedures for the management and control of ships' ballast water and sediments. Measures within the ballast water management plan will include detail of vessel specific measures, require vessel to complete a ballast water record book, conduct regular inspection, and where necessary hold an international ballast water management certificate.

Based on the above mitigation being adhered to, it can be concluded that the risk of the spread of INNS occurring during the works is extremely low and the resulting magnitude from any such event would be negligible. As a result, pollution events associated with the works are not anticipated to impact the integrity of the Sound of Gigha SPA.

5.1.2.3 Pollution Events

The works associated with the Proposed Development are taking place within the SPA. The proposed works will require the use of plant and machinery on site which has associated fuel use. Due to the use of poured concrete, fuel and likely requirement to refuel certain types of equipment on site, this presents a possibility for pollution events to take place. Additionally, there is also the potential for demolition to break out concrete; these could all enter the marine environment (and therefore, the SPA) in the absence of mitigation. This could adversely affect its designated features.

To avoid potential pollution events and to reduce the magnitude of any event occurring, the following mitigation will be adhered to and will also be specified in the Proposed Development's CEMP:

- Pollution prevention measures specified in current Scottish Environment Protection Agency (SEPA) and Construction Industry Research and Information Association (CIRIA) guidance will be adhered to during works to avoid pollution/run-off of any material into the marine waters. These will be compiled into a Pollution Prevention Control Plan to provide information on the prevention and management of potential pollution sources into the marine environment associated with the works. This plan will also cover specific measures for marine vessel activities (e.g. dredging) Adherence to the Water Management Plan detailed in the CEMP.
- Staff will be required to undergo pollution toolbox talks prior to conducting the Works.
- An Environmental Emergency Plan will be prepared by the Contractor prior to construction. This will be issued as a tool box talk with copies kept in site offices for consultation and implementation in the event of an emergency.

- Good housekeeping practices will be implemented on site at all times, any areas where hazardous substances have been used e.g., concrete will be sufficiently covered at the end of each day.
- Designated refuelling areas will be established, located away from waterbodies (>10m). All fuel tanks and oil drums will be bunded with impervious material. Where more than one container is stored, the bund will be capable of storing 110% of the largest tank or 25% of the total storage capacity, whichever is the greater.
- All mobile plant will be refuelled in a designated area on a temporary bunded impermeable surface and away from drains. In case of any spillages there will be a spill response kit available at each refuelling point and within each machine working within the site. Where it is impractical to refuel within a bunded area, a drip tray will be available to catch any spills.
- All tanks and containers will be kept in a secure compound and be protected from vandalism and will be clearly marked with their contents. Stores shall be located at least 10m from any waterbody.
- Oil absorbers and grab packs will be available on all vehicles and further materials, including booms.
- Spill kits will be available on all plant / machinery and centrally in each area.
- Drip trays will be placed at the point where oils/fuels are transferred from one container to another.
- All fuel, oil and chemical deliveries will be supervised by a refuelling marshal who will be trained to deal with any spillage to prevent a pollution problem occurring.
- Marine grade, non-toxic compounds and materials will be utilised for construction and any materials utilised will be fully cured before exposure to the marine environment.
- Regarding the prevention of discharges of cementitious materials and alkaline wastewaters, the following will be implemented:
 - Risk assessments for wet concreting will be completed by the Contractor prior to works being carried out.
 - Concrete washout will not drain to any waterbody, drainage channel or marine environment. Impermeable areas will be designated for concrete handling/mixing and for washing and cleaning, at least 10m from surface drainage systems, local waterbodies and marine environment.
 - There will be a designated area for the washout of concrete wagons, shoots and mortar bins at the site. This will be either a lined skip or a pit lined with an impervious membrane to prevent the escape of the alkaline and silty waters entering the groundwater, surface water or marine environment.
 - Excess concrete remaining in the delivery wagon at the end of a pour will be returned to a designated collection area. Once work sites are completed any solid concrete in the washout area will be broken out and used either as suitable fill or disposed of to a licensed waste facility.
- Any effluent from the site compound will be collected in an effluent holding tank and removed from site as controlled waste. The foul effluent can only be removed from site by licensed waste disposal companies and the effluent must be taken to a fully recognised and licensed sewerage treatment works.
- All applicable vessels that travel to the site from outside of UK waters will comply with the IMO Ballast Water Management (BWM) Convention 2004 which establishes standards and procedures for the management and control of ships' ballast water and sediments. Under the Convention, all ships of 400 gross tonnes (gt) and above in international traffic are required to manage their ballast water and sediments to a certain standard, according to a ship-

specific ballast water management plan. All ships will also have to carry a ballast water record book and an international ballast water management certificate.

- All vessels will also comply with the Merchant Shipping (Anti-fouling Systems) Regulations 2009, which prohibit the use of harmful organotin compounds in anti-fouling paints used on ships and establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems and places into UK law Regulation (EC) 782/2003 on the prohibition of organotin compounds on ships.
- All vessels will ensure compliance with standard marine vessel policies, such as the Convention for the Prevention of Collisions at Sea (COLREGs) (International Maritime Organisation (IMO), 1972), International Convention for the Prevention of Pollution from Ships (MARPOL)(IMO, 1997), and the Convention of the Prevention of Marine Pollution by Dumping of Wastes and other matter (IMO, 1996).

Based on the above mitigation being adhered to, it can be concluded that the risk of a pollution event occurring during the works is extremely low and the resulting magnitude from any such event would be negligible. As a result, pollution events associated with the works are not anticipated to impact the integrity of the Sound of Gigha SPA.

5.1.2.4 Underwater Noise

Dredging, piling and potential Cardox CO₂ fracturing have been identified as activities that will generate underwater and in-air noise during the works. Although hearing frequencies of diving birds are poorly understood, there is evidence indicating that diving birds detect and respond to sound underwater¹⁹. However, it is considered that birds are less sensitive to underwater noise than marine mammals given their greater reliance on visual cues for foraging²⁰. As such measures to protect marine mammals (detail later as part of Section 5.2.4) would equally prevent harm in marine mammals. However, it should be noted that when birds are loafing²¹ they are unlikely to be affected by underwater noise.

Wintering bird surveys identified all SPA designated species present (aside from Slavonian grebe²²) however, red-breasted merganser and slavonian grebe (present in previous surveys) were present in numbers above the 1% significance threshold. In addition, for all species, avoidance of the area around the jetty was noted during ferry movements. The impact of underwater noise can affect the behaviour of wintering birds and cause disturbance; This could cause displacement from the area due to underwater noise; disturbance from the proposed works; and disruption of prey or prey habitats. Underwater noise can potentially cause temporary and permanent hearing loss for birds which can impact on navigation, communication and feeding abilities. Furthermore, underwater noise can impact predator avoidance and communication with offspring. All species of diving birds designated for the area are sensitive to underwater noise, especially Red-breasted merganser and Eider ducks that were specified as having medium sensitivity.

¹⁹ Zeyl, J.N., Snelling, E.P., Connan, M. et al. Aquatic birds have middle ears adapted to amphibious lifestyles. *Sci Rep* 12, 5251 (2022). <https://doi.org/10.1038/s41598-022-09090-3> Available at: [Aquatic birds have middle ears adapted to amphibious lifestyles | Scientific Reports \(nature.com\)](https://www.nature.com/articles/s41598-022-09090-3)

²⁰ Darby, J., Clairbaux, M., Bennison, A., Quinn, J.L. and Jessopp, M.J., 2022. Underwater visibility constrains the foraging behaviour of a diving pelagic seabird. *Proceedings of the Royal Society B*, [online] 289(1978). <https://doi.org/10.1098/RSPB.2022.0862>.

²¹ Defined as predominantly resting or preening of the surface of the water as may include other behaviours not connected with feeding or breeding. As defined in Weaver, P. 1990. *The Bird Watcher's Dictionary* (T & AD Poyser), Academic Press, Cambridge, MA.

²² Although not noted during the 2022-23 wintering surveys, desk study data provided by the Argyll Bird Club has provided records of the species presence therefore, these are assumed as being present in numbers above the significance threshold

To mitigate for these potential impacts, the following mitigation is therefore proposed:

- All equipment will be maintained to a high standard to minimise noise and vibration generated during the works. They will also be switched off when not in use to minimise noise and reduce air pollution.
- Toolbox talks for contractors on relevant designated features will take place.
- Prior to starting any noise-generating activities a 500m zone around non-impulsive sources and 1km zone around impulsive sources shall be monitored for diving birds for 30 minutes in good daylight conditions (Beaufort Sea state 3 or less) by suitably trained and dedicated observers.
- Should diving birds be observed, the start of operations will be delayed until 20 minutes after the last sighting of a diving bird within the buffer zone.
- Where possible equipment shall be soft started with either a ramp up in energy or gradual decreasing intervals between strikes over a period of 20-40 minutes duration. In the case of Cardox, detonations will be conducted with sequential delays between detonations to minimise shockwaves.
- The Scottish Marine Wildlife Watching Code (SMWWC)²³ will also be adhered to during any vessel-based operations and activities which generate less noise will precede the noisier activities.
- No piling or rock breaking work shall take place from dusk to dawn nor in poor weather condition (ie greater Beaufort sea state 3 and less than 500m visibility).

These measures will be incorporated into a construction noise ecological mitigation plan which will be implemented to cover the impacts on birds.

Based on the limited numbers of birds observed within the works area and with the implementation of the above mitigation, it is considered unlikely that noise and vibration during construction will impact the integrity of the SPA.

5.1.2.5 Airborne Noise Disturbance

Generally, low numbers of birds were noted to be present during the 2022/23 winter bird surveys however, Slavonian grebe and red-breasted merganser were present within the Proposed development area in numbers exceeding the significance threshold. They are highly likely to be habituated to the normal port operations (including scheduled ferry movements and the regular presence of cars, lorries and pedestrians.) However, the works will involve the movements and use of different types of vessels including a backhoe dredger and other support boats, and will lead to changes in the type and frequency of visual disturbance from normal operations (i.e increase in construction vehicles and personnel). Piling and dredging activities have the potential to result in 'moderate' levels of disturbance to wintering waterbirds at distances of up to 430m¹⁴ from the works (noise source). This could result in the displacement of individuals from feeding and roosting areas.

On a precautionary basis, the following mitigation is proposed:

- Noise levels will be kept to a minimum throughout the works areas by turning plant and machinery off when not in use and avoid unnecessary revving of engines, particularly during the night, so as to minimise disturbance to roosting birds in the local area;
- Speed limits will be adhered to, in order to minimise noise;
- Use rubber linings in, for example, chutes and dumpers to reduce impact noise;
- Minimise drop height of materials;

²³ NatureScot, 2017 [Online] Available at: [The Scottish Marine Wildlife Watching Code SMWWC | NatureScot](#)

- Vehicles use smart reversing alarms;
- Quiet equipment is sourced and attenuated, ducted or silenced by best practice means and under manufacturer guidance;
- Screens or fencing will be located as near to the source as reasonably practical;
- Fixed plant will be located as far as reasonably practical away from areas where noise sensitive receptors are likely to congregate;
- Any plant which has directional noise propagation will be orientated away from noise sensitive receptors;
- Maintain all equipment so that loose panels and cover plates do not cause unnecessary noise;
- Soft-start technology will be implemented, where possible over a period of approximately 20 minutes, to enable birds time to flee the area; and
- Where deemed appropriate (through risk assessment), physical barriers will be erected around activities that are expected to generate particularly high noise levels to provide screening attenuation. Noise barriers are most effective if located close to the noise source or close to the receptor. Care will be taken to optimise the position of any barriers proposed where practicable.

In addition, the mitigation outlined under Section 5.1.2.4 (underwater noise) is considered applicable. As a result of the implementation of the above mitigation, no impacts to the integrity of the SPA are anticipated.

5.1.2.6 Changes in Turbidity

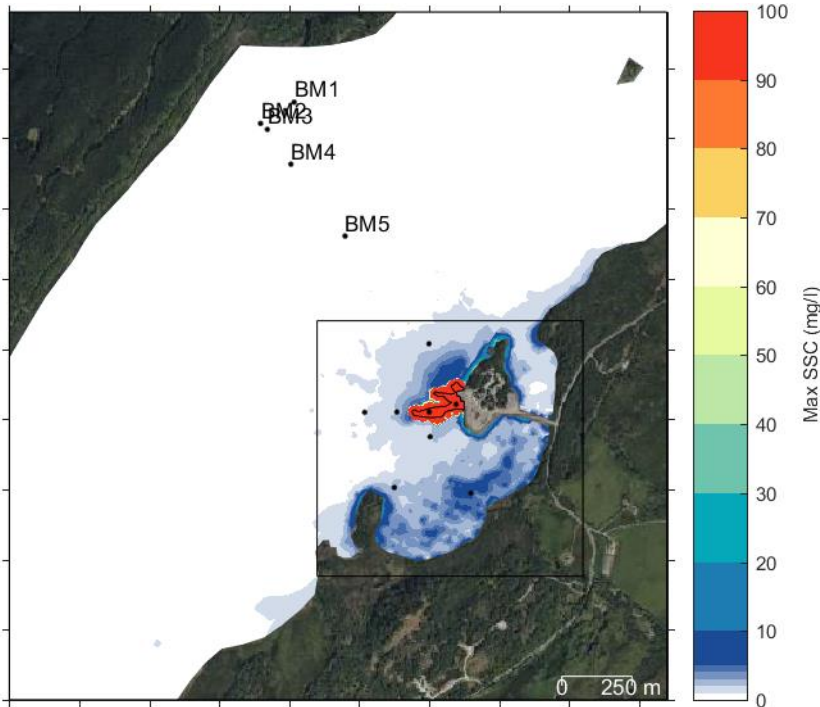
Sediment modelling has been undertaken²⁴ and as a precautionary approach, the greatest dispersion scenario of dredge operations being undertaken during high winds and under spring tides was modelled. The furthest expanse of the maximum increase in suspended sediments concentrations (SSC) occurring in each spatial cell above background from across the entire dredge period was used as the worst-case area of impact to receptors (see Figure 5.1). Note the model may overemphasise concentrations within the dredge boundary as it considers instantaneous addition of the total spilled sediments in a particular spatial cell, which is likely a far worse case than the more gradual release that would occur in reality.

However, it should be noted that the majority of suspended sediments are shown by the model to be short lived as supported by Figure 5.2 below. This figure illustrates the SSC which is exceeded for a total of more than 3 hours during the model simulation (noting that this may be a 3-hour continuous presence or discontinuous periods of presence totalling over 3 hours). For context, a 3-hour exceedance is approximately equivalent to a 99th percentile exceedance over the model simulation period, or a 98th percentile exceedance over the dredge period (see full report²⁴).

The sediment deposition was also modelled using a precautionary (worst-case) of strong winds and spring tides (Figure 5.3). This shows that the sedimentation is predicted to remain localised to the dredge footprint and adjacent areas, with sedimentation of more than 10mm predicted within the footprint of the dredge and sedimentation of more than 1mm extending c.100m from the dredge footprint.

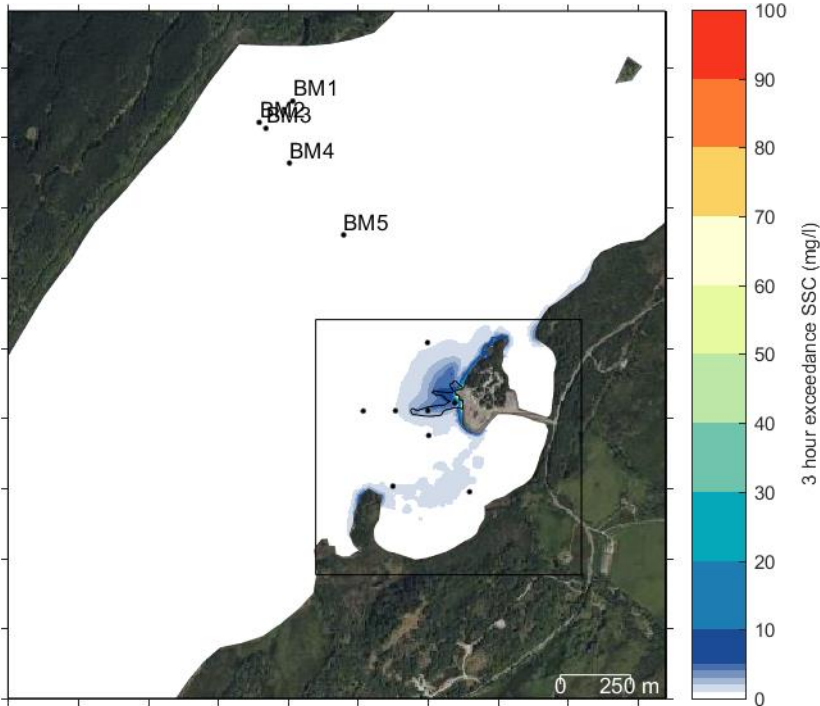
²⁴ Mott MacDonald, 2023. 105612-MMD-KE-ZZ-RP-O-0007-S2-P01-New Islay Vessel Enabling Works
Kennacraig Dredge Dispersion Modelling Report

Figure 5.1: Modelled maximum SSC at the dredge area



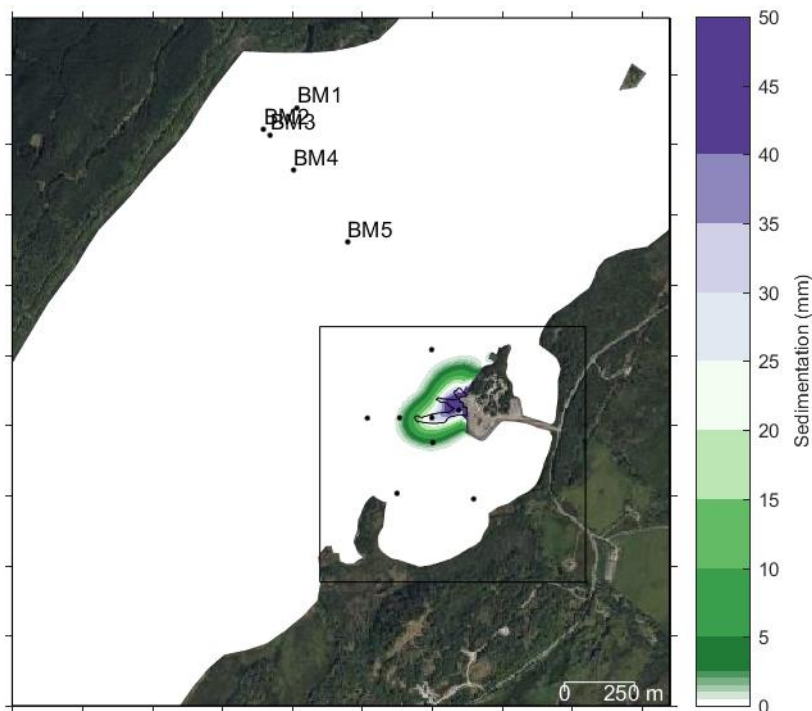
Source: 105612-MMD-KE-ZZ-RP-O-0007-S2-P01-New Islay Vessel Enabling Works Kennacraig Dredge Dispersion Modelling Report

Figure 5.2: Persistence concentrations above cumulative 3 hours



Source: 105612-MMD-KE-ZZ-RP-O-0007-S2-P01-New Islay Vessel Enabling Works Kennacraig Dredge Dispersion Modelling Report

Figure 5.3: Sediment deposition under strong winds and spring tides



Source: 105612-MMD-KE-ZZ-RP-O-0007-S2-P01-New Islay Vessel Enabling Works Kennacraig Dredge Dispersion Modelling Report

Wintering bird surveys identified all SPA designated species present within the works area (aside from Slavonian grebe) however, only red-breasted merganser were present in numbers above the 1% significance threshold. In addition, for all species, avoidance of the area around the jetty was noted during ferry movements. Known areas of blue mussel beds²⁵ (an important food source for wintering birds) are also illustrated in Figure 5.1 and Figure 5.3 (Prefixed with BM) which are located outside of the modelled increases in turbidity and sediment deposition so not likely to be affected. In addition, disposal of the dredged material will be at a licenced offshore disposal site outside of the SPA where material would disperse rapidly therefore, any impacts are considered to be short-term.

Given the modelling results above and the relatively low numbers of individuals present in the area, additional mitigation measures are not considered for the dredge works themselves due to the operational safety constraints with maintaining ferry access and the limited scale of effect. However, to reduce the risk of additional turbidity from spills or construction operations, the measures outlined in Section 5.1.2.3 will be implemented.

As mentioned above, sediment dispersion modelling indicates that the sediment plumes will be localised to the dredge area with the largest impacts from dredging works occurring within the immediate dredge area itself. Therefore, the works would only impact a small area, would only have short term effects, and sediments would be settling locally. As a result, it is not anticipated that the dredging works will affect a significant number of wintering birds or significant number of their prey. Given that any effects are likely to be temporary and short duration in nature, it is

²⁵ NatureScot, 2022. Geodatabase of Marine features adjacent to Scotland (GeMS) - Scottish Priority Marine Features (PMF) . [online] Natural Spaces. Available at: <<https://cagmap.snh.gov.uk/natural-spaces/dataset.jsp?code=GEMS-PMF>> [Accessed 4 April 2023].

considered that with mitigation reducing spills and dredging operating in line with the modelled scenario, there would not be an adverse effect on the integrity of the SPA.

5.1.2.7 Resuspension of Contaminants

Sediment sampling has been undertaken for the Proposed Development and screened against Scotland action levels 1 and 2 (AL1 and AL2)²⁶. Results showed there were no exceedances of AL2 however, there were 36 recorded exceedances of AL1 across the six sampling locations for arsenic, chromium, copper, mercury, nickel, PAHs and total hydrocarbon content (THC). The contamination present could impact on the designated features; indirect impacts from suspension of contaminants could impact on water and prey quality, reducing food availability. Also, bioaccumulation resulting from ingestion of contaminated prey could result in health issues and/or mortality.

Although the chemistry is elevated, this only occurred within certain areas of the dredging works or at specific depth horizons for the majority of compounds except chromium. Therefore, not the entire dredge volume that exceeds the threshold and receiving concentrations may be diluted from mixing. In addition, samples were ground prior to analysis which would mean that matrix bound contaminants that are not normally bioavailable would also be included within the concentration and may have added to the elevation of certain compounds. Furthermore, the analysis was undertaken using a total digestion method (hydrofluoric acid) so is likely to be greater than what would be considered bioavailable which is in contrast to the original action levels devised by Cefas that used a partial digest method²⁷. The methods also do not determine the form of chromium which depending upon the valency would depend upon its toxicity. All compounds were below probably effect levels and the majority were below T₅₀ levels²⁸.

However, dispersion of the sediment is limited and is unlikely to extend to the mussel beds which are a priority habitat and important food source for the wintering birds (See Section 5.1.2.6). Dredged material will be disposed of in a licensed area offshore outside of the SPA and will be rapidly dispersed with low concentrations received at the seabed.

To avoid the introduction of contaminants to the environment during construction, pollution prevention best practise measures will be implemented, as above under Section 5.1.2.35.1.2.3. In addition to this and on the basis of the above, the following mitigation will be implemented:

- A full closure bucket will be attached to the backhoe dredger to minimise spillage.

The design has been reviewed to minimise the amount of sediment removed, though no consideration of operational changes to further limit suspended sediment spread. Given the limited dispersion anticipated of contaminants and small area that will be impacted relative to the extent of the SPA, no impact on the overall integrity of the SPA is anticipated. However, should further discussion with Marine Scotland on additional measures and conditions required will be undertaken as part of the dredge licensing.

²⁶ Mott MacDonald Ltd, 2023. Best Practicable Environmental Option Assessment Report. Document reference: 105612-MMD-KE-ZZ-RP-O-0006-S2-P01

²⁷ See reviews on action levels Gov. UK. (2015). High level review of current UK action level (MMO1053) - GOV.UK. <https://www.gov.uk/government/publications/action-levels-1053> and Mason, C., Vivian, C., Griffith, A., Warford, L., Hynes, C., Barber, J., Sheahan, D., Bersuder, P., Bakir, A., & Lonsdale, J. A. (2021). Reviewing the UK's Action Levels for the Management of Dredged Material. *Geosciences* 2022, Vol. 12, Page 3, 12(1), 3. <https://doi.org/10.3390/GEOSCIENCES12010003>

²⁸ T₅₀ is chemical concentration corresponding to 50% probability of observing toxicity and as presented along with other toxic thresholds (including probable effect levels) in Buchman, M.F., 2008. Screening Quick Reference Tables (SQiRTs). [online] NOAA OR & R Report 08-1. Available at: <https://response.restoration.noaa.gov/environmental-restoration/environmental-assessment-tools/squirt-cards.html> [Accessed 28 February 2023].

5.1.2.8 Visual Disturbance

To minimise any visual disturbance to designated species that may be present in the area during works the following will be undertaken:

- Where deemed appropriate (through risk assessment), physical barriers will be erected around terrestrial activities that are expected to generate particularly high noise levels (which lowers receptors threshold to visual disturbance) or large amount of movement to provide screening. Care will be taken to optimise the position of any barriers proposed where practicable and may be considered in conjunction with noise barriers that also provide visual screening;
- The use of sensitive lighting when working during hours of darkness will be implemented to reduce light spill onto marine habitats (such as directional lighting, hoods and cowls); and
- Toolbox talks given to all workers to advise on how best to minimise disturbance.

With the implementation of mitigation, no impacts to the integrity of the SPA are anticipated from visual disturbance.

5.2 Inner Hebrides and the Minches SAC

5.2.1 Vessel Strike

To reduce incidental collisions occurring between marine mammals and reduce effects of propeller cavitation the following mitigation is proposed:

- Vessels in transit and manoeuvring in coastal waters during construction will be within speeds outlined by Maritime and Coastguard Agency's (MCAs) legislation and guidance²⁹.
- The SMWWC²³ will be adhered to, measures include:
 - All vessels and equipment will be well maintained and be inspected prior to use to minimise unnecessary noise.
 - Should a marine mammal be encountered whilst underway outside of noise emitting operations, the vessel shall avoid sudden unpredictable changes in speed, direction and engine noise.
 - The vessel shall seek to maintain a minimum of 100m separation unless directly approached whereupon the vessel shall maintain a steady speed and course whilst not presenting propellers to the approaching animal.
- The use of a suitable Code of Conduct, such as the WiSe Scheme³⁰; primarily for wildlife watching however, outlines measures for vessel operation around marine wildlife and will be considered for use as mitigation for any collision risk posed to marine mammals during construction works and transit.

Based on the above mitigation being adhered to, it can be concluded that the risk of vessel strikes occurring during the works is extremely low and the resulting magnitude from any such event would be negligible. As a result, disturbance and physical harm from marine vessels events associated with the works are not anticipated to impact the integrity of the Inner Hebrides and the Minches SAC.

5.2.2 Introduction and Spread of Invasive Non-Native species (INNS)

The Proposed Development is 8.1km northeast of the SAC and will have machinery, plant and site works moving throughout the Proposed Development area. As above, if INNS are present

²⁹ Maritime and Coastguard Agency, May 2014. Active marine guidance notes (MGNs) [Online] Available at: [Active marine guidance notes \(MGNs\) - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/292422/Active_marine_guidance_notes_(MGNs)_-GOV.UK_(www.gov.uk).pdf)

³⁰ See [Home | The WiSe Scheme](#)

on site, this poses the risk of spreading INNS further throughout other areas of the Proposed Development. As works are being undertaken within the marine environment, it is possible for INNS to be introduced and or spread to the site. This could adversely affect harbour porpoises directly (e.g. toxicity) or indirectly (e.g. decrease in prey).

In order to mitigate for the introduction and/or spread of INNS during the Proposed Development, certain biosecurity protocols need to be adhered to, these can be found in 5.1.2.2.

Based on the above mitigation being adhered to, it can be concluded that the risk of the spread of INNS occurring during the works is extremely low and the resulting magnitude from any such event would be negligible. As a result, pollution events associated with the works are not anticipated to impact the integrity of the Inner Hebrides and the Minches SAC.

5.2.3 Pollution Events

As above, the Proposed Development is 8.1km northeast of the SAC and is considered hydrologically connected. The proposed works will require the use of plant and machinery with associated fuel use and vessels for the dredging works, which will be travelling between the site and the disposal sites. Due to the use of fuel and likely requirement to refuel certain types of equipment on site, use of poured concrete and potential for hydro-demolition, this presents a possibility for pollution events to take place. It is possible for pollution events (dependent on the scale) to end up within the boundaries of the SAC.

In order to mitigate for pollution events during the Proposed Development, certain mitigation measures need to be adhered to, these can be found in 5.1.2.3.

Based on the above mitigation being adhered to, it can be concluded that the risk of pollution events occurring during the works is extremely low and the resulting magnitude from any such event would be negligible. As a result, pollution events associated with the works are not anticipated to impact the integrity of the Inner Hebrides and the Minches SAC.

5.2.4 Underwater Noise

Dredging, piling and potential Cardox CO₂ fracturing have been identified as activities that will generate underwater and in-air noise during the works. Underwater noise modelling^{31,32} has been undertaken for the activities that generate both impulsive and continuous sound which found that the majority of the construction works will generate continuous and impulsive underwater noise as shown in Table 5-1: Assessed marine construction works and their type of noise. Harbour porpoise sit within the very high frequency (VHF) hearing group.

Table 5-1: Assessed marine construction works and their type of noise

	Piling		Pre-dredging			Dredging	
	Vibro	Bore	Rock pre-drilling	Cardox	Rock peckering	TSHD	Backhoe
Continuous	✓	✓	✓	X	X	✓	✓
Impulsive	X	X	X	✓	✓	X	X

Source: Trailer Suction Hopper Dredger

³¹ Mott Macdonald, 2022. Port Kennacraig – Underwater Noise Technical Note. Report Reference: 105612-MMD-KE-ZZ-TN-O-0001-S2-P01-NIV Enabling Works Kennacraig Preliminary Underwater Assessment

³² Mott Macdonald, 2023. Port Kennacraig – Underwater Noise Assessment. Report Reference: 105612-MMD-00-ZZ-RP-O-0004-S2-P01-NIV Enabling Works Kennacraig Underwater Noise Assessment

Initial noise attenuation calculations indicated that based on a stationary receptor, the largest impact distance resulted from the Cardox CO2 fracturing system on the VHF marine mammal hearing group, with PTS and TTS distances of 650m and 4400m respectively for the cumulative sound exposure level (SELcum). The PTS and TTS distances were reduced to 92m and 630m respectively when considering a receptor that flees directly away from the noise source. Further modelling, taking account of the bathymetry and sediments around the works, with more detailed propagation algorithms, indicated that the distances reduced to a maximum of 650m for PTS and 1400m for TTS to occur where a receptor remains static for the Cardox system. However given longer duration of the rock peckering in the modelled scenario a VHF hearing group static receptor were predicted to have a SELcum PTS at a maximum distance of 780m and a TTS at a maximum distance of 2500m from the source. Accordingly, when considering directly fleeing away receptors these distances reduced to a PTS within 80m and TTS within 390m from the Cardox detonations, and PTS occurring <10m and TTS within 70m for rock peckering.

However, it should be considered that the behaviour of marine mammals is likely to change once the works have commenced or may not behave as predicted. Therefore, the true impact would potentially lie somewhere between the directly fleeing away response and remaining stationary to account for things such as direction of travel, hesitation and curiosity. The noise model only takes into account any harm that could occur to receptors as a result of the works and does not include disturbance (such as a reduction in feeding), which is likely to occur over a much wider area.

Given the distance of the SAC from the works, no impact from underwater noise is anticipated on designated species located within the SAC boundary. However, given harbour porpoise are highly mobile, individuals could be present within the area of the Proposed Development and therefore the following mitigation is proposed in addition to those listed under Section 5.1.2.45.1.2.4:

- Toolbox talks for contractors on relevant designated features will take place.
- Prior to starting any noise-generating activities a 500m zone around non-impulsive sources and 1km zone around impulsive sources shall be monitored for marine mammals for 30 minutes in good daylight conditions (Beaufort Sea state 3 or less) by suitably trained (JNCC methods) and dedicated observers.
- Passive acoustic monitoring will also be used to aid monitoring of the mitigation zones for vocalising species.
- Should marine mammals be observed, the start of operations will be delayed until 20 minutes after the last sighting of a marine mammal within the buffer zone.
- The Scottish Marine Wildlife Watching Code (SMWWC)³³ will also be adhered to during any vessel-based operations and activities which generate less noise will precede the noisier activities.

With the implementation of mitigation it is considered unlikely that noise from the Proposed Development will impact the integrity of the Inner Hebrides and the Minches SAC.

5.2.5 Changes in Turbidity

Sediment dispersion modelling has been undertaken (see discussion in Section 5.1.2.65.1.2.6) which indicates that the sedimentation is predicted to remain localised to the dredge footprint and adjacent areas. Increases in turbidity can disturb foraging by harbour porpoise and also can indirectly affect them by impacting the habitat or prey species that support them. However, the works are predicted to only impact a small area and would only have short term effects. As a

³³ NatureScot, 2017 [Online] Available at: [The Scottish Marine Wildlife Watching Code SMWWC | NatureScot](#)

result, it is not anticipated that the dredging works will affect a significant number of harbour porpoises or significant number of their prey. However, to reduce the risk of additional turbidity from spills or construction operations, the measures outlined in Section 5.1.2.3 will be implemented. In addition, a full closure bucket will be attached to the backhoe dredger to minimise sediment spillage during dredging(see Section 5.1.2.65.1.2.7).

Given that any effects are likely to be temporary and short duration in nature, additional mitigation measures are not considered for the dredge works themselves due to the operational safety constraints with maintaining ferry access and the limited scale of effect. Based on the above, changes in turbidity are not anticipated to impact the integrity of the Inner Hebrides and the Minches SAC.

5.2.6 Resuspension of Contaminants

The use of vibropiling and dredging at the Proposed Development can lead to changes in water quality through pollution events and the release of potentially contaminated sediments. This could adversely affect harbour porpoise directly (e.g. toxicity) or indirectly (e.g. decrease in prey).

To avoid the introduction of contaminants to the environment during construction, pollution prevention best practise measures will be implemented, as above under Section 5.1.2.3 and to minimise disturbance of sediments a full closure bucket will be attached to the backhoe dredger to minimise spillage (See Section 5.1.2.7).

Based on these mitigation measures being adhered to; it can be concluded that the risk of contaminant resuspension from the Proposed Development are low and not anticipated to impact the integrity of the Inner Hebrides and the Minches SAC.

5.3 Stage 2 Summary

A summary of the potential effect, the designated sites impacted, and the proposed mitigation is provided in Table 5-2 below.

Table 5-2: Summary of Potential Impacts and Mitigation

Potential Effect	Designated Sites Impacted	Mitigation
Vessel strike	<ul style="list-style-type: none"> • Sound of Gigha SPA • Inner Hebrides and the Minches SAC 	<ul style="list-style-type: none"> • Vessels in transit and manoeuvring in coastal waters operating will be within speeds outlined by Maritime and Coastguard Agency’s (MCAs) legislation and guidance¹⁸. • The SMWWC²³ will be adhered to, measures include: <ul style="list-style-type: none"> – All vessels and equipment will be well maintained and be inspected prior to use to minimise unnecessary noise. – Should a marine mammal be encountered whilst underway outside of noise emitting operations, the vessel shall avoid sudden unpredictable changes in speed, direction and engine noise. – The vessel shall seek to maintain a minimum of 100m separation unless directly approached whereupon the vessel shall maintain a steady speed and course whilst not presenting propellers to the approaching animal. – Where birds are observed to be rafting³⁴ the vessel shall avoid driving through the aggregated birds and maintain a 50m separation where practicable and safe to do so. – Where there are birds situated on the water, the vessel shall maintain a speed below 6 knots where safe to do so. <p>The use of a suitable Code of Conduct, such as the WiSe Scheme³⁵; primarily for wildlife watching however, outlines measures for vessel operation around marine wildlife and will be considered for use as mitigation for any collision risk posed to marine mammals during construction works and transit.</p>
Introduction/spread of INNS	<ul style="list-style-type: none"> • Sound of Gigha SPA • Inner Hebrides and the Minches SAC 	<ul style="list-style-type: none"> • Pre-construction walkover surveys to look for presence of existing INNS across the Proposed Development area will be undertaken. If identified, these areas will be made aware to site workers and suitable buffers set up around them to avoid potential spread through the site. • Toolbox talks will be held with site workers to raise the awareness of how to avoid, deal with and identify INNS. • Production of a marine biosecurity plan which would include measures to reduce/eliminate the risk of introducing or spreading INNS on site. The Principal Contractor’s Biosecurity Manager or Environmental Clerk of Works (ECoW) will update and maintain a site-specific Marine Biosecurity Plan. Measures include the following: <ul style="list-style-type: none"> – Sections of the plant that would come into direct contact with the intertidal area (track/wheels) will be thoroughly cleaned before and after use to avoid the spread of any INNS (e.g. wheel washing facilities will be provided). – Where possible, existing material will be reclaimed, therefore lowering the risk of the introduction of invasive species. Any brought in material will be bespoke. If this is not possible, it will be ensured that brought in material hasn’t been utilised in the marine environment previously. Again, if this is not possible, material brought in will be screened for INNS ahead of its use on site.

³⁴ Rafting is a behaviour where birds sit, often in groups, on the water close to their colony or nests.

³⁵ See [Home | The WiSe Scheme](#)

Potential Effect	Designated Sites Impacted	Mitigation
Pollution events	<ul style="list-style-type: none"> • Sound of Gigha SPA • Inner Hebrides and the Minches SAC 	<ul style="list-style-type: none"> • A Pollution Prevention Control Plan will be produced and implemented. This will include information on the prevention and management of potential pollution sources into the marine environment associated with the works, including the proposed dredging. • Pollution prevention measures will be adhered to during works to avoid pollution/run-off of any material into the harbour. These will include current Scottish Environment Protection Agency (SEPA) and Construction Industry Research and Information Association (CIRIA) guidance. • Adherence to the Water Management Plan (within the CEMP). • Requiring staff to undergo pollution toolbox talks prior to completing the required works. • An Environmental Emergency Response Plan will be prepared by the Contractor prior to construction. This will be issued as a tool box talk and kept in site offices for consultation. • Good housekeeping practices will be implemented on site at all times, any areas where hazardous substances have been used e.g., concrete will be sufficiently covered at the end of each day. • Designated refuelling areas will be established, located away from waterbodies (>10m). All fuel tanks and oil drums will be bunded with impervious material. Where more than one container is stored, the bund will be capable of storing 110% of the largest tank or 25% of the total storage capacity, whichever is the greater.
Change in turbidity	<ul style="list-style-type: none"> • Sound of Gigha SPA • Inner Hebrides and the Minches SAC 	<ul style="list-style-type: none"> • All mobile plant will be refuelled in a designated area on a temporary bunded impermeable surface and away from drains. In case of any spillages there will be a spill response kit available at each refuelling point and within each machine working within the site. Where it is impractical to refuel within a bunded area, a drip tray will be available to catch any spills. • All tanks and containers will be kept in a secure compound and be protected from vandalism and will be clearly marked with their contents. Stores shall be located at least 10m from any waterbody. • Oil absorbers and grab packs will be available on all vehicles and further materials, including booms. • Spill kits will be available on all plant / machinery and centrally in each area. • Drip trays will be placed at the point where oils/fuels are transferred from one container to another. • All fuel, oil and chemical deliveries will be supervised by a refuelling marshal who will be trained to deal with any spillage to prevent a pollution problem occurring • Marine grade, non-toxic compounds and materials will be utilised for construction and any materials utilised will be fully cured before exposure to the marine environment. • Regarding the prevention of discharges of cementitious materials and alkaline wastewaters, the following will be implemented: <ul style="list-style-type: none"> – Risk assessments for wet concreting will be completed by the Contractor prior to works being carried out. – Concrete washout will not drain to any waterbody, drainage channel or marine environment. Impermeable areas will be designated for concrete handling/mixing and for washing and cleaning, at least 10m from surface drainage systems, local waterbodies and marine environment. – There will be a designated area for the washout of concrete wagons, shoots and mortar bins at the site. This will be either a lined skip or a pit lined with an impervious membrane to prevent the escape of the alkaline and silty waters entering the groundwater, surface water or marine environment.

Potential Effect	Designated Sites Impacted	Mitigation
		<ul style="list-style-type: none"> – Excess concrete remaining in the delivery wagon at the end of a pour will be returned to a designated collection area. Once work sites are completed any solid concrete in the washout area will be broken out and used either as suitable fill or disposed of to a licensed waste facility. • Any effluent from the site compound will be collected in an effluent holding tank and removed from site as controlled waste. The foul effluent can only be removed from site by licensed waste disposal companies and the effluent must be taken to a fully recognised and licensed sewerage treatment works. • All applicable vessels that travel to the site from outside of UK waters will comply with the IMO Ballast Water Management (BWM) Convention 2004 which establishes standards and procedures for the management and control of ships' ballast water and sediments. Under the Convention, all ships of 400 gross tonnes (gt) and above in international traffic are required to manage their ballast water and sediments to a certain standard, according to a ship-specific ballast water management plan. All ships will also have to carry a ballast water record book and an international ballast water management certificate. • All vessels will also comply with the Merchant Shipping (Anti-fouling Systems) Regulations 2009, which prohibit the use of harmful organotin compounds in anti-fouling paints used on ships and establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems and places into UK law Regulation (EC) 782/2003 on the prohibition or organotin compounds on ships.
Underwater noise	<ul style="list-style-type: none"> • Sound of Gigha SPA • Inner Hebrides and the Minches SAC 	<ul style="list-style-type: none"> • All equipment will be maintained to a high standard to minimise noise and vibration generated during the works. They will also be switched off when not in use to minimise noise and reduce air pollution. • A construction noise ecological management mitigation plan will also be implemented to cover the impacts from noise. • No rock breaking works shall take place from dusk to dawn nor in poor weather conditions. <p>Marine mammals and Birds</p> <ul style="list-style-type: none"> • Prior to starting any noise-generating activities a 500m zone around non-impulsive sources and 1km zone around impulsive sources shall be monitored for marine mammals and diving birds for 30 minutes in good daylight conditions (Beaufort Sea state 3 or less) by suitably trained (JNCC methods) and dedicated observers. • Passive acoustic monitoring shall also be used to aid monitoring of the mitigation zones for vocalising marine mammal species. • Should marine mammals or diving birds be observed, the start of operations will be delayed until 20 minutes after the last sighting of a marine mammal or diving bird within the buffer zone. Noting that non diving birds (i.e those that are loafing) would not require a delay. • Where possible equipment shall be soft started with either a ramp up in energy or gradual decreasing intervals between strikes over a period of 20-40 minutes duration. In the case of carbox, detonations will be conducted with sequential delays between detonations to minimise shockwaves. • The Scottish Marine Wildlife Watching Code (SMWWC)³⁶ will also be adhered to during any vessel-based operations and activities which generate less noise will precede the noisier activities.
Airborne noise disturbance	<ul style="list-style-type: none"> • Sound of Gigha SPA 	<ul style="list-style-type: none"> • Noise levels will be kept to a minimum throughout the works areas by turning plant and machinery off when not in use and avoid unnecessary revving of engines, particularly during the night, so as to minimise disturbance to roosting birds in the local area; • Speed limits will be adhered to;

³⁶ NatureScot, 2016 [Online] Available at: [The Scottish Marine Wildlife Watching Code SMWWC | NatureScot](#)

Potential Effect	Designated Sites Impacted	Mitigation
		<ul style="list-style-type: none"> • Use rubber linings in, for example, chutes and dumpers to reduce impact noise; • Minimise drop height of materials; • Agreement of HGV routes with Argyll and Bute Council through the development of a construction traffic management plan; • Vehicles use smart reversing alarms; • Quiet equipment is sourced and attenuated, ducted or silenced by best practice means and under manufacturer guidance; • Screens or fencing will be located as near to the source as reasonably practical; • Fixed plant will be located as far away from noise sensitive receptors as reasonably practical; • Any plant which has directional noise propagation will be orientated away from noise sensitive receptors; • Maintain all equipment so that loose panels and cover plates do not cause unnecessary noise; • Soft-start technology will be implemented, where possible over a period of approximately 20 minutes, to enable birds time to flee the area; and • Where deemed appropriate (through risk assessment), physical barriers will be erected around activities that are expected to generate particularly high noise levels to provide screening attenuation. Noise barriers are most effective if located close to the noise source or close to the receptor. Care will be taken to optimise the position of any barriers proposed where practicable.
Resuspension of contaminants	<ul style="list-style-type: none"> • Sound of Gigha SPA • Inner Hebrides and the Minches SAC 	<p>Pollution prevention best-practise measures as above under “Pollution event”.</p> <ul style="list-style-type: none"> • A full closure bucket will be attached to the backhoe dredger to minimise spillage. • Discussion with Marine Scotland on additional measures and conditions required will be undertaken as part of the dredge license application.
Visual disturbance	<ul style="list-style-type: none"> • Sound of Gigha SPA 	<ul style="list-style-type: none"> • Where deemed appropriate (through risk assessment), physical barriers will be erected around activities that are expected to generate particularly high noise levels or large amount of movement to provide screening. Care will be taken to optimise the position of any barriers proposed where practicable and may be considered in conjunction with noise barriers that also provide visual screening; • The use of sensitive lighting when working during hours of darkness will be implemented to reduce light spill onto marine habitats (such as directional lighting, hoods and cowls); and • Toolbox talks given to all workers to advise on how best to minimise disturbance.

5.4 In-combination Assessment

Under the Habitats regulations, it is a requirement to consider other projects or plans that could present a significant effect on a designated site or feature when considered alone or in-combination with the Proposed Development. Whilst there is no legal definition of what constitutes a plan or project for the Habitats Regulations, National Infrastructure Planning Advice Note 10³⁷ advises that the following types of plans/projects should be taken into account:

- Projects under construction;
- Permitted application(s) not yet implemented;
- Submitted application(s) not yet determined;
- All refusals subject to appeal procedures not yet determined;
- National Planning Framework 3 programme of projects (Scottish Government, 2014); and
- Projects equivalent of those the National Infrastructure Programme of Projects which for Scotland are those listed in Projects identified in the relevant development plan (and any emerging development plans – with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited and the degree of uncertainty which may be present.

Following a search of the Marine Scotland planning application portal using the above criteria³⁸, no works were found within 10km of the Proposed Development but the following projects were identified from the same company for consideration of in-combination effects in this HRA:

1. Port Ellen Expansion
2. Colonsay Port Expansion
3. Port Askaig Expansion

As a result of the screening exercise, no other projects have been identified as having the potential for in-combination effects when considered in line with the Proposed Development. The projects identified have been screened in Table 5-3.

As a result of the screening exercise, no projects or plans have been identified as having the potential for in-combination effects when considered with the Proposed Development. As a result, no further assessment is made. It should be noted that if the HRA is updated following detailed design, there will be a requirement to review the above in-combination projects to understand if more information is available regarding their timescales and to see if any new projects have been identified.

³⁷ Advice Note 10; Habitats Regulations Assessment relevant to nationally significant infrastructure projects. [Online] Available at: [Advice Note Ten: Habitats Regulations Assessment relevant to nationally significant infrastructure projects | National Infrastructure Planning \(planninginspectorate.gov.uk\)](https://www.planninginspectorate.gov.uk/advice-note-ten-habitats-regulations-assessment-relevant-to-nationally-significant-infrastructure-projects/) [Accessed March 2022]

³⁸ Searches for in-combination projects were made during the week commencing 30th January 2023

Table 5-3: Projects Screened for In-combination Effects

Plan or Project	Approximate Distance from the Proposed Development	Description	Screened in (✓) or out (X)	Justification for Decision
New Islay Port Enablement Works Port Askaig	39.3km west	<p>Upgrades to the ferry terminal to facilitate future accommodation of a new vessel with deeper draught and higher displacement. Works primarily consist of the following:</p> <ul style="list-style-type: none"> ● Replace three fenders on the roundhead; ● Remedial works to the concrete roundhead structure and adjacent concrete deck, to seal gaps, repair cracking, and replace lost grout; ● New gangways; ● Extend the height of the V fenders and concrete sponsons; ● Replace fenders along quay; ● Installation of mooring aid; and ● Ancillary works to enable the installation of the mooring aid system. Which is likely to include (but may not be limited to): <ul style="list-style-type: none"> – The mobile fuel facility sitting on the finger pier needs to be relocated. – A new 40KW power supplying is to be provided. – The 20t bollard adjacent to the finger pier has to be removed to enable the relocation of the fuel tank. – The lifebuoy post at the rear of the finger pier need potentially relocated. – Trending and ducting for low voltage cabling and Moorex equipment may be required. <p>All works are above the mean high water springs (MHWS) with the exception to upgrading existing fenders and remedial works to concrete structures</p>	X	<p>If this proposal is granted, there will be an overlap in construction program with the Proposed Development. Port Askaig is located outside of the Inner Hebrides and the Minches SAC and most works for this proposal are being undertaken above the MHWS.</p> <p>During construction, the mitigation outlined in Sections 5.1 and 5.2 will be adhered to for the Proposed Development , which avoids the occurrence of any adverse effects on the integrity of the designated sites and associated interest features. Mitigation has also been outlined for the Port Askaig works³⁹.</p> <p>It is considered that the mitigation outlined for both is sufficient to rule out any potential in-combination effects from both projects.</p> <p>In terms of the operational phase there is no effect from the Proposed Development (see Section 4.5) therefore, no operational phase in-combination effects are identified.</p> <p>As a result, this is screened out of further assessment.</p>

³⁹ Mott MacDonald, March 2023. New Islay Port Enablement Works Port Askaig HRA (Document reference: 105612-MMD-PA-ZZ-RP-O-0004-S2-P01).

Plan or Project	Approximate Distance from the Proposed Development	Description	Screened in (✓) or out (X)	Justification for Decision
New Islay Port Enablement Works Port Ellen ⁴⁰	48.6km west	<p>Upgrades to the ferry terminal to facilitate future accommodation of a new vessel with deeper draught and higher displacement. Works primarily consist of the following:</p> <ul style="list-style-type: none"> • Construction of new sheet piled wall in front of existing linkspan; • Construction of linkspan bankseat and lifting frames using bored concrete piles; • Installation of new scour protection (concrete fabric formwork mattress filled with pumped concrete); • Upgrades to existing fenders; • Installation of a new linkspan (steelwork - offsite fabrication); • Reinstatement of paving where required; • Installation new vessel shore power; • Dredging to 5.5m or 6m (to facilitate scour protection) below Chart Datum. The approximate area dredged would be approximately 18,200m² and volume 15,710m³; • Shore power; and • New longer gangway. 	X	<p>If this proposal is granted, there will be an overlap in construction program with the Proposed Development, however, this proposal is significantly separated from the Proposed Development and is located outside of the Inner Hebrides and the Minches SAC.</p> <p>During construction, the mitigation outlined in Sections 5.1 and 5.2 will be adhered to for the Proposed Development, which avoids the occurrence of any adverse effects on the integrity of the designated sites and associated interest features. Mitigation has also been outlined for the Port Ellen works⁴¹.</p> <p>It is considered that the mitigation outlined for both is sufficient to rule out any potential in-combination effects from both projects.</p> <p>In terms of the operational phase there is no effect from the Proposed Development (see Section 4.5) therefore, no operational phase in-combination effects are identified.</p> <p>As a result, this is screened out of further assessment.</p>
New Islay Port Enablement Works Colonsay	52.6km north-west	<p>Upgrades to the ferry terminal to facilitate future accommodation of a new vessel with deeper draught and higher displacement. Works primarily consist of the following:</p>	X	<p>If this proposal is granted, there will be an overlap in construction program with the Proposed Development, however, this proposal is significantly separated</p>

⁴⁰ Screening Opinion - Harbour Refurbishments - Port Ellen, Argyll and Bute | Marine Scotland Information

⁴¹ Mott MacDonald, March 2023. New Islay Port Enablement Works Port Ellen HRA (Document reference: 105612-MMD-PE-ZZ-RP-O-0004-S2-P01)

Plan or Project	Approximate Distance from the Proposed Development	Description	Screened in (✓) or out (X)	Justification for Decision
		<ul style="list-style-type: none"> ● Replacement of existing fenders with new; ● Replacement of two bollards at the roundhead from T Head bollards to mushroom bollards; ● Provision of gangways which are to be at least 17m long; ● Installation of existing pile toe protection, likely in the form of concrete filled steel collars with dowels into rock or concrete mattress to replace the overburden on the pile toe; ● Installation of timber piles adjacent to existing piles; and ● Dredging to 5.5m below Chart Datum (CD) in order to maintain at least 1 metre of underkeel clearance. The approximate dredged area would be approximately 4300m² and volume 7000m³. ● Pile toe reinforcement; ● Fender upgrade along timber grillage; and ● Dredging. 		<p>from the Proposed Development though is located within the Inner Hebrides and the Minches SAC. During construction, the mitigation outlined in Sections 5.1 and 5.2 will be adhered to for the Proposed Development, which avoids the occurrence of any adverse effects on the integrity of the designated sites and associated interest features. Mitigation has also been outlined for the Colonsay works⁴². It is considered that the mitigation outlined for both is sufficient to rule out any potential in-combination effects from both projects. In terms of the operational phase there is no effect from the Proposed Development (see Section 4.5) therefore, no operational phase in-combination effects are identified. As a result, this is screened out of further assessment.</p>

⁴² Mott MacDonald, March 2023. New Islay Port Enablement Works Colonsay HRA (Document reference: 105612-MMD-CO-ZZ-RP-O-0005-S2-P01)

6 Summary and Conclusion

Following this HRA, it is considered that the Proposed Development will not have any adverse effect on the overall integrity of the designated sites and their features either alone, or in combination with other projects.

It should be noted that this HRA has been produced based on project information available at the time of writing (April 2023). Therefore, should any aspect of the project change (including construction methodology and programme), then this HRA should be revisited to re-assess potential effects.