Appendix 8.5 Shadow Habitats Regulations Appraisal

ORKNEY'S COMMUNITY WIND FARM PROJECT - FARAY

Shadow Habitat Regulations Appraisal

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Client Name:	Orkney Islands Council
Client Contact:	Sweyn Johnston
Client Address:	School Place, Kirkwall, Orkney KW15 1NY
Document Status:	Final for Issue
Author:	M Forup
Reviewed:	G Tait
Approved:	P Darnbrough
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ITPEnergised Office:	4th Floor, Centrum House, 108-114 Dundas Street, Edinburgh EH3 5DQ

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Contents

1. Introduction

1.1 Overview

ITPEnergised (ITPE) was appointed by Orkney Islands Council (OIC) to undertake a 'shadow' Habitat Regulations Appraisal (HRA) of the proposed Orkney's Community Wind Farm Project - Faray (the 'Proposed Development') on the island of Faray (hereafter referred to as 'the Site'), located in Orkney between the islands of Westray and Eday, and with central Ordnance Survey grid reference: HY531367.

The work was commissioned following a scoping opinion provided by NatureScot on 15th May 2019. NatureScot advised that the most significant natural heritage interests likely to be affected by the proposal are grey seals (*Halichoenus grypus*) belonging to the Faray & Holm of Faray Special Area of Conservation (SAC) population and harbour seals (*Phoca vitulina*) of the Sanday SAC population, and HRA would therefore be required. However, it was pointed out that NatureScot do not anticipate any effects on seals that cannot be avoided or mitigated. They noted that the applicant's commitment to undertake construction work outwith the grey seal breeding season will be particularly important in avoiding any adverse effect on the Faray & Holm of Faray SAC.

The Proposed Development overlaps with the Faray and Holm of Faray SAC and is located 10.7km west of the Sanday SAC (see Figure 1).

This document draws upon information provided within the Environmental Impact Assessment (EIA) Report (EIAR) for the Proposed Development (ITPEnergised, 2021) and is based on project information available at the time of writing.

1.2 Habitats Regulations Appraisal

HRA relates to the network of nature conservation designations, the so-called UK site network comprising SACs and Special Protection Areas (SPAs). The purpose of the HRA is to assess whether a proposal has the potential to result in adverse effects on the integrity of a European site. A HRA is formally carried out by the competent authority; however, it typically falls on the developer to submit sufficient scientific evidence to enable the authority to complete the HRA, and this evidence is submitted in the form of a 'shadow' HRA.

1.2.1 Legislative Background

The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) ("The Habitats Regulations") provides legal protection for habitats and species of national importance. Regulations 7 to 9D provide the legislative means to protect habitats and species through the establishment and conservation of the UK site network of special areas of importance for nature conservation that is composed of sites hosting rare and vulnerable habitats and species. This network is designed to enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range.

The UK has designated a number of sites of nature conservation importance which form part of the UK site network. The UK site network comprises SACs and SPAs designated under the Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (also known as the 'Habitats Directive') and the Council Directive 2009/147/EC on the conservation of wild birds, codified version, (also known as the 'Birds Directive') before 11pm on 31 January 2020 ("Exit Day") and under the Habitats Regulations for designations after Exit Day. In addition, as clarified by paragraphs 207 to 211 of the Scottish Planning Policy 2014, candidate SACs and proposed SPAs (i.e. sites which have been approved by Scottish Ministers for formal consultation but which have not yet been designated) are treated as if they had been fully designated. In addition, wetlands of international importance designated under the Ramsar Convention (Ramsar wetlands) are also treated as designated UK network sites and are therefore also considered in HRAs.

The procedures that must be followed when considering developments affecting European sites are set out in Regulations 7 to 9D of the Habitats Regulations.

Regulation 48 sets out the decision-making tests for plans and projects likely to have a significant effect on or to adversely affect the integrity of European sites. Regulation 48(1) establishes the requirement for Appropriate Assessment (AA):

"(1) A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which–

(a) is likely to have a significant effect on a European site in Great Britain or a European offshore marine site (either alone or in combination with other plans or projects), and

(b) is not directly connected with or necessary to the management of the site,

shall make an appropriate assessment of the implications for the site in view of that site's conservation objectives."

The methodology followed in this report, to inform the Regulation 48 assessments has had regard to the following guidance and legislation:

- Guidance:
  - SNH (2018). Natura sites and the Habitats Regulations: How to consider proposals affecting SACs and SPAs in Scotland. The essential quick guide.
- Legislation:
  - The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).

1.2.2 Overview of Appropriate Assessment Stages

An HRA is a process to determine Likely Significant Effect (LSE) through Stage 1 screening and (where such likely effects are identified) assess whether there are adverse impacts on the integrity of a Natura Site by means of an Appropriate Assessment (AA) (Stage 2).

The threshold for LSE is treated in the screening exercise as being above a trivial or '*de minimis*' level. A *de minimis* effect is a level of risk that is too small to be concerned with, when considering the ecological requirements of an Annex I habitat or a population of Annex I (bird) or Annex II (non-avian) species present in a European site that are necessary to ensure their favourable conservation status. If low level effects on habitats or individuals of species are judged to be of this order of magnitude, and that judgment has been made in the absence of reasonable scientific doubt, then those effects are not considered to be significant.

Based on the outcome of the AA, the Competent Authority shall agree to a plan or project only after having ascertained that it will not adversely affect the integrity of the European site concerned.

The European Commission (2018) states that the 'integrity of the site' can be usefully defined as the coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated. They go on to state the following:

"*The integrity of the site involves its constitutive characteristics and ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the habitats and species for which the site has been designated and the site's conservation objectives*."

When considering the 'integrity of the site', it is therefore important to consider a range of factors, including the possibility of effects materialising in the short, medium and long-term.

In its judgement (May 2018) of Case C-323/17 ("People Over Wind") the European Court of Justice affirms that ecological mitigation measures cannot be considered during Stage 1, and the European Commission (2018) therefore now considers that mitigation measures must be directly linked to the likely impacts that have been identified in Stage 2; they can, therefore, only be defined once these impacts have been described and assessed by the competent authority through an AA. However, some mitigation may be so embedded in a proposal that assessment cannot meaningfully be done in the absence of the mitigation; this notably includes design of a scheme which will often have evolved through consideration of environmental

constraints. NatureScot interprets the judgement as meaning that it is those measures specifically intended to avoid or reduce harmful effects (i.e. post design) to a European site which cannot be considered at the screening stage (SNH, 2019). As such, mitigation specifically intended to avoid or reduce harmful effects can only be considered after Stages 1 and 2 have been undertaken.

The above judgement remains legally binding until such time as it is amended by the Supreme Court[1].

Mitigation measures, which aim to avoid or reduce impacts or prevent them from happening in the first place, must not be confused with compensatory measures, which are intended to compensate for any damage that may be caused by the project. Compensatory measures can only be considered under Article 6(4) if the plan or project has been accepted as necessary for Imperative Reasons of Overriding Public Interest (IROPI) and where no alternatives exist.

Where a competent authority concludes through an AA that there will be an adverse effect on the integrity of a European Site, the Competent Authority may only agree to a plan or project if:

- it is evidenced that there are no alternative solutions (Stage 3); and
- IROPI applies for the advancement of the project (Stage 4).

2. Relevant European Sites

As mentioned above NatureScot has advised that the most significant natural heritage interests likely to be affected by the proposal are interests of the Faray & Holm of Faray SAC and the Sanday SAC. The Proposed Development overlaps with the Faray and Holm of Faray SAC and is located 10.7km west of the Sanday SAC (see Figure 1). Each European site is also designated under national legislation[2] as a Site of Special Scientific Interest (SSSI), but it is only the qualifying SPA interest which is relevant for the present document.

2.1 Faray and Holm of Faray SAC

2.1.1 Description

The Faray and Holm of Faray SAC was designated in 1998 under the Habitats Directive (92/43/EEC) and comprises two uninhabited islands in the northern part of Orkney and the adjacent marine areas and sea inlets. Habitats of lesser abundance include improved grassland, shingle, sea cliffs, islets, coastal sand dunes, sand beaches and machair, inland water bodies, bogs, marshes, water fringed vegetation and fens. The SAC covers an area of 781.33 ha. The SAC data sheet is included in Appendix A. The Joint Nature Conservation Committee (JNCC) website for the SAC (JNCC, 2021a) describes the qualifying interest as follows:

“Annex I habitats of the EC Habitats Directive that are a primary reason for site designation:

- Not applicable.

Other Annex I habitats present as a qualifying feature but not a primary reason for designation:

- Not applicable.

Annex II species that are a primary reason for selection of this site:

- 1364 Grey seal Halichoerus grypus.

  These two uninhabited islands in the northern part of Orkney support a well-established grey seal *Halichoerus grypus* breeding colony. The seals tend to be found in areas where there is easy access from the shore, and freshwater pools on the islands appear to be particularly important. The islands

[1] Section 6(4) of the European Union (Withdrawal) Act 2018
[2] Nature Conservation (Scotland) Act 2004

support the second-largest breeding colony in the UK, contributing around 9% of annual UK pup production.

Annex II species present as a qualifying feature, but not a primary reason for site selection:

- Not applicable."

2.1.2 Conservation Objectives

The conservation objectives for Faray and Holm of Faray SAC are:

- To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained, and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and
- To ensure for the qualifying species that the following are maintained in the long term:
  - Population of the species as a viable component of the site
  - Distribution of the species within site
  - Distribution and extent of habitats supporting the species
  - Structure, function and supporting processes of habitats supporting the species
  - No significant disturbance of the species.

2.1.3 Site Condition

NatureScot is required to undertake Site Condition Monitoring (SCM) to assess the condition of Natura designated sites. The NatureScot web page for the site (NatureScot 2021a) suggests this was most recently done in November 2014 when the SCM assessed the qualifying interest as Favourable Maintained. The SCM report is not publicly available.

As described in EIAR Chapter 8: Ecology and Nature Conservation, Orkney grey seal pup production since 2000 is noted as relatively stable, but low in comparison to the rest of the UK (+0.2 % increase since 2014). Through data modelling, the overall 2018 UK grey seal population was estimated at 152,000 (SCOS, 2019), including infrequently monitored colonies; however, estimated pup production for 2016 indicated 65,378. Using the estimated pup production figures, the Orkney population was estimated at c. 23,849 animals, representing c.43.6 % of the Scottish population (54,741) and a significant 36.5 % of the UK total (SCOS, 2019). Specifically, for the Faray and Holm of Faray SAC, and indicating its importance to the Orcadian grey seal population, the SAC accounted for c.15% (c.3,578 animals) of Orkney grey seal pup production in 2010 (Russel *et al*., 2016).

2.2 Sanday SAC

2.2.1 Description

The Sanday SAC was designated in 1999 under the Habitats Directive (92/43/EEC) and comprises a large, low-lying island in the north-east of the Orkney archipelago with adjacent areas of open sea and sea inlets. Habitats of lesser abundance include shingle, sea cliffs, islets, coastal sand dunes, sand beaches and machair, tidal rivers, estuaries, mudflats, sand flats and lagoons, as well as salt marshes, salt pastures, salt steppes, bogs, marshes, water fringed vegetation, fens and improved grassland. The SAC covers an area of 10976.97 ha. The SAC data sheet in included within Appendix B. The JNCC website for the SAC (JNCC, 2021b) describes the qualifying interest as follows:

"Annex I habitats of the EC Habitats Directive that are a primary reason for site designation:

- 1170 Reefs

  Sanday is a large, low-lying island in the north-east of the Orkney archipelago. Surrounded by clear, relatively shallow water, the island has a complex coastline dominated by extensive sandy beaches

and sheltered inlets, interspersed with rocky headlands. Sanday is notable for the extensive subtidal bedrock reefs that surround the island and provide a habitat for dense forests of kelp *Laminaria* spp. The kelp occurs to a depth of about 20 m and provides a habitat for species-rich, red algal turf communities. Sponges, such as *Clathrina coriacea*, and ascidians, such as *Aplidium punctum*, occur on the vertical rock faces. The north coast of Sanday is tide-swept and appears to support a richer fauna than the south coast, with a dense bryozoan/hydroid turf and dense brittlestar and horse mussel *Modiolus modiolus* beds in mixed sediment below the kelp zone. Crabs and brittlestars are common within crevices in the rock.

Other Annex I habitats present as a qualifying feature but not a primary reason for designation:

- 1110 Sandbanks which are slightly covered by sea water all the time.
- 1140 Mudflats and sandflats not covered by seawater at low tide.

Annex II species that are a primary reason for selection of this site:

- 1365 Harbour seal (aka common seal) *Phoca vitulina*

  Sanday is situated in the north-east of the Orkney archipelago and supports the largest group of Harbour seal *Phoca vitulina* at any discrete site in Scotland. The breeding groups, found on intertidal haul-out sites that are unevenly distributed around the Sanday coast, represent over 4% of the UK population. Nearshore kelp beds that surround Sanday are important foraging areas for the seals, and the colony is linked to a very large surrounding population in the Orkney archipelago.

Annex II species present as a qualifying feature, but not a primary reason for site selection:

- Not applicable."

2.2.2 Conservation Objectives

The conservation objectives for Sanday SAC are:

- To avoid deterioration of the qualifying habitats (listed below), thus ensuring that the integrity of the site is maintained, and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features;
- To ensure for the qualifying habitats that the following are maintained in the long term:
  - Extent of the habitat on site
  - Distribution of the habitat within site
  - Structure and function of the habitat
  - Processes supporting the habitat
  - Distribution of typical species of the habitat
  - Viability of typical species as components of the habitat
  - No significant disturbance of typical species of the habitat
- To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and
- To ensure for the qualifying species that the following are maintained in the long term:
  - Population of the species as a viable component of the site
  - Distribution of the species within site
  - Distribution and extent of habitats supporting the species
  - Structure, function and supporting processes of habitats supporting the species

- No significant disturbance of the species.

2.2.3 Site Condition

The NatureScot web page for the site (NatureScot 2021b) suggests SCM was most recently done in August 2013, when the harbour seal feature was assessed as Unfavourable Declining. The intertidal mudflats and sandflats, reefs and subtidal sandbanks features do not appear to have been subject to SCM since November 2003, when all three qualifying features were assessed as Favourable Maintained. No SCM report is publicly available for any of the qualifying interests.

In an analysis carried out by Thomson *et al*. (2019), the composite harbour seal counts for the North Coast and Orkney seal management unit (SMU), which includes Sanday, declined from approximately 8,800 in the mid-1990s to 1,350 by 2016, representing an 85% decrease in what had been the largest single SMU population in the UK. The counts for the Sanday SAC itself showed a similar trend, with a step change between 2001 and 2006 and a continuing decline of 17.8% p.a. since 2006. This mirrors a decline in the species seen elsewhere in the UK, although some populations are stable or increasing. The decline is caused by reduced fecundity or increased mortality; however, Lonergan *et al*. (2007) and Hanson *et al.* (2017) have suggested that the observed declines in the North Coast and Orkney SMU (and the Tay and Eden Estuary SAC) cannot be due purely to reduced reproduction, because even repeated complete reproductive failure would have been unlikely to produce the sustained rapid rates of decline. These declines must therefore be due in part to loss of adults as well as pups. However, no conclusive causes of this has been identified.

3. Description of the Proposed Development

3.1 Overview of Proposal

The Proposed Development is described in EIAR Chapter 3: Proposed Development with greater detail on certain aspects of the development provided in some technical chapters, notably EIAR Chapter 12: Traffic and Transport and EIAR Chapter 16: Underwater Noise. An overview of is provided below:

The Proposed Development would consist of six wind turbines on the island of Faray, each of up to a maximum of 149.9 m height from ground to blade tip when vertical. The likely installed capacity of the Proposed Development will be approximately 28.8 MW. The actual installed capacity may be greater or less dependent on turbine model selection but will not be greater than 50 MW. A number of ancillary elements are also proposed, including access tracks, crane hardstandings, underground cabling, possible external transformers, on-site substation and maintenance building, temporary construction compounds, borrow pits, permanent meteorological mast, a new extended slipway and a landing jetty. The proposed site layout is shown on EIAR Figure 1.2.

The Proposed Development will be accessed from new marine access points to be constructed on the south of the island. A new extended slipway will be required to replace the existing facility and would be built in the same location as the existing slipway. A new landing jetty will be constructed to allow access for larger vessels to Faray and would be located in close proximity to the new extended slipway. The new extended slipway and landing jetty are described in greater detail in sections below.

The access tracks within the site boundary will generally be c.4.5 m wide, but it will be wider on some bends and where passing places will be installed. It is anticipated that approximately 500 m of existing tracks would be upgraded and approximately 4,057 m of new access tracks constructed.

The electrical power produced by the individual turbines will be fed to an on-site substation within the site via underground cables. The proposed location for the on-site substation is shown in EIAR Figure 1.2. Connection of the Proposed Development to the grid or to a private wire will be subject to a separate planning application.

3.2 New Extended Slipway

Figure 2 illustrates the anticipated location and extent of the new extended slipway at Ness, which would be required to replace the existing facility. This item would need to be replaced regardless of the Proposed Development as the current slipway is badly damaged and access to the island is still required for agricultural purposes. The new extended slipway would be built in the same location as the existing slipway. It would be refurbished and extended to allow for preliminary site works to be undertaken. The design of the slipway would be sufficient to enable access by larger vessels with the bow or stern gate and would be built to a standard design for the Orkney Islands to allow access for local vessels. The extant slipway is c.20 m long by 3.5 m wide, though this was originally longer. This would be upgraded to a maximum 36 m long and 8 m wide.

Based on currently available project information, piling is not considered to be required for the extended slipway.

3.3 New Landing Jetty

Figure 2 also illustrates the anticipated location and extent of the new landing jetty at Ness, which is necessary because the dimensions of the turbine components mean that a slipway is unsuitable for delivery. The jetty has, therefore, been designed to accommodate vessels which transport the turbine components. The jetty would comprise a causeway up to 55 m long and 10 m wide, terminating in square structure for docking, measuring up to 20 m by 20 m. The square docking structure would likely be constructed *in situ* using 0.6 m wide PU-28 sheet piles which are likely to be installed using a 30 kJ pile driving hammer sheet piles below Mean High Water Spring (MHWS). The causeway would be in-filled and capped-off with concrete batched onsite.

As described in EIAR Chapter 17 and 18, localised dredging will be required for the construction of both the slipway and the jetty. In addition, there is the potential for dredging, to allow for vessel access to the jetty, to be required. Note, the exact vessel requirements are not known at the time of writing as construction contractors would not be appointed until post consent. Thus, the dimensions and associated dredging volumes provided for the new extended slipway and landing jetty are the maximum requirements based on the largest vessel sizes the structures could support.

4. Other Projects

There are no other planned developments of a comparable scale and impacts potentially affecting seals in the area. Therefore, there are considered to be no cumulative effects.

5. Is the Project Related to or Necessary for the Management of a European Site?

The Proposed Development is not related to or necessary for the management of the Faray and Holm of Faray SAC, the Sanday SAC or any other European site.

6. Stage 1: Screening for Likely Significant Effects

6.1 Faray and Holm of Faray SAC

6.1.1 Potential Impacts

The potential impacts of the Proposed Development on the conservation objectives for the qualifying interest of the Faray and Holm of Faray SAC, which overlaps with the Proposed Development, can result in both direct and indirect effects and include:

- Habitat loss;
- Visual and noise disturbance of breeding grey seals on land or when foraging;
- Disturbance of the prey of breeding grey seals;
- Disturbance of non-breeding grey seals hauling out or in the sea;
- Disturbance of the prey of non-breeding grey seals; and
- Visual disturbance from increased ship traffic.

6.1.2 Analysis of the Potential for Likely Significant Effects

6.1.2.1 1364 Grey seal *Halichoerus grypus*

The Proposed Development overlaps with the SAC which has a population of grey seals that are a qualifying feature of the SAC. As demonstrated on EIAR Figure 8.4, grey seals occur in close proximity to the proposed works areas. There is consequently potential for LSE on the qualifying feature of the SAC.

6.2 Sanday SAC

6.2.1 Potential Impacts

The potential impacts of the Proposed Development on the conservation objectives for the Sanday SAC, which is located 10.7km from the Proposed Development, can result in indirect effects and include:

- Temporary or permanent habitat change by damage to reefs, mudflats and sand banks through pollution events;
- Visual and noise disturbance of harbour seals hauling out or in the sea;
- Disturbance of the prey of harbour seals; and
- Visual disturbance from increased ship traffic.

6.2.2 Analysis of the Potential for Likely Significant Effects

6.2.2.1 1170 Reefs

The Proposed Development is located 10.7km from Sanday SAC, and works to construct an onshore wind farm on Faray will not be significantly connected to reefs of the SAC because of this distance. There is consequently no potential for LSE on this qualifying feature of the SAC.

6.2.2.2 1110 Sandbanks which are slightly covered by sea water all the time

The Proposed Development is located 10.7km from Sanday SAC, and works to construct an onshore wind farm on Faray will not be significant connected to sandbanks of the SAC because of this distance. There is consequently no potential for LSE on this qualifying feature of the SAC.

6.2.2.3 1140 Mudflats

The Proposed Development is located 10.7km from Sanday SAC, and works to construct an onshore wind farm on Faray will not be significant connected to mudflats of the SAC because of this distance. There is consequently no potential for LSE on this qualifying feature of the SAC.

6.2.2.4 1365 Harbour seal *Phoca vitulina*

The Proposed Development is located 10.7km from Sanday SAC and therefore within the 40-50 km foraging distance of the Sanday harbour seal population. As described in EIAR Appendix 8.3: Seal Survey, only a single harbour seal was recorded in the seal survey but it is likely that a higher number of harbour seals use the waters around Faray in greater numbers, as suggested by harbour seal tracking data (Russell *et al*., 2017), even though most trips made by Sanday SAC seals are likely to mainly take place east of Sanday (SMRU, 2011). It is concluded that there is consequently potential for LSE on this qualifying feature of the SAC.

7. Stage 2: Shadow Appropriate Assessment

7.1 Faray and Holm of Faray SAC

7.1.1 Habitat Loss

7.1.1.1 Habitat use by seals

As described in EIAR Appendix 8.3, a series of monthly seal survey visits were undertaken from April to September 2019, inclusive, and in February and March 2020. The survey programme was timed to specifically exclude the breeding season from mid-September to early December, inclusive, in order to prevent any disturbance caused by surveyor presence at this sensitive time that can result in females abandoning new-born pups. Survey visits later in December 2019 and in January 2020 were delayed owing to extreme weather preventing safe access to the island. The survey included the Faray shoreline and the sea to 500 m offshore. Adult grey seals congregate on haul-outs in autumn to give birth, and births generally take place in October-November.

As shown on EIAR Figure 8.4, seals were recorded all around the coastline, with animals apparently present on any suitable haul-out surface. 1,461 recordings of grey seals were made in the survey overall, with monthly variations ranging from a low count of 43 animals in April 2019 to a maximum of 406 animals in August 2019. The survey results indicate grey seals use of much of the island's shoreline year-round but with considerable variation across the year. With the survey programme excluding the breeding season, it is not possible to determine how many seals use Faray for pupping or at which locations, but approximately 50% the animals recorded in August 2019 appeared to stay in the area for September.

Relatively low numbers of seals were recorded on rocks to either side of the current slipway at Ness in May (6 individuals, 3.77% of total monthly count), June (2 individuals, 0.78% of total monthly count), August (26 individuals, 6.4% of total monthly count), September (2 individuals, 0.88% of total monthly count) and in February (1 individual, 0.78% of total monthly count). Seals were not recorded at Ness in the months of April, July or March. These figures confirm that seals use the Ness location but that the SAC population is unlikely to depend on this location, which is subject to regular use by the farmer. According to JNCC (2021a), the seals tend to be found in areas where there is easy access from the shore, and freshwater pools on Faray and the Holm of Faray appear to be particularly important. On Faray most of these freshwater pools occur below the 10 m contour line in the far north of the island, by Lavey Sound. A smaller number of pools are present near the southern tip of Faray. Aerial photography on Bing Maps (2021) shows a large number of seals at pools in the south of Holm of Faray, whereas a small number of seals are present at pools in the north of Faray and none appear to be present at pools in the south of Faray. It is unclear if this aerial imagery was obtained during the breeding season, but it suggests that the preferred freshwater pool habitat is more

abundant on Holm of Faray and used by greater numbers of seals than locations on Faray. Within Faray itself, pools in the north appear to be more abundant and used by greater numbers of seals than pools in the south.

7.1.1.2 Effect

EIAR Table 18.4 summarises the seabed disturbance from works to extend the slipway and construct the landing jetty, and it is reproduced in Table 1 below. The footprint will result in a loss of up to 1,168 m^2 of habitat, which in EIAR Chapter 8 is broken down as comprising 842 m^2 of intertidal rock habitat and 326 m^2 of seabed below MLWS. This loss is in itself unlikely to affect seals. Breeding seals are likely to mainly use the freshwater pool areas in the north of the island, and on Holm of Faray, but in the absence of disturbance, any breeding or non-breeding seals at Ness could use the new structures as haul-out sites.

Table 1: Seabed disturbance

Structure	Structure footprint	Dredging area
New extended slipway	Maximum 36 m long and 8 m wide. The existing slipway is 20 m by 3.5 m, resulting in an additional 218 m^2 of seabed disturbance	Up to 600 m^3 of sediment would be dredged at the end of slipway to a maximum of 1 m depth Resulting in up to 600 m^2 of seabed disturbance
Landing jetty	Causeway measuring a maximum of 55 m long by 10 m wide, terminating in a square docking structure measuring a maximum 20 m by 20 m. Resulting in up to 950 m^2 of seabed disturbance	Approximately 2,400 m^3 of sediment would be dredged to a maximum of 1m depth, equating to up to 2,400 m^2 of seabed. This includes dredging within the footprint of the landing jetty. Thus, dredging would result in up to an additional 1,450 m^2 of seabed disturbance
Total	**Up to 1,168 m^2**	**Up to 2,050 m^2**

As summarised in Table 1, construction of the new extended slipway and landing jetty would necessitate dredging of up to 3,000 m^3 of material across a 3,000 m^2 area. Dredging would be of overlaying sediment only, no blasting of underlying rock is planned for the Proposed Development. Dredging would be up to 1m deep and, as discussed in the EIAR Chapter 17, the sediment predominantly comprises medium to fine sand.

As the permanent habitat loss is up to 1,168 m^2, the remaining minimum 1,832 m^2 is likely to re-balance given the energetic sediment cycle. The sediment released by dredging will disperse in the receiving water and will cause an increase in suspended sediment concentrations (i.e. increases over background concentrations) known as a sediment plume. This may negatively impact marine water quality, until the sediment drops out of suspension and deposits onto the seabed, which could negatively impact sediment quality. However, as described in EIAR Chapter 17: Marine Water and Sediment Quality, the dredging plume is likely to have reduced to levels which lie within its range of natural variability within 200 m, and the dredging impact itself is estimated to last up to two weeks and is not likely to be detectable within a few days (at most) from the cessation of dredging operations.

These impacts, combined with the permanent habitat loss of the seabed, also reduce the amount of habitat potentially available to prey species, which notably include sand eels and cod, and could therefore affect the distribution or abundance of grey seals. Female seals fast during the 16-18 day lactation period. When the lactation is complete, they may mate with males present at the breeding site, and males do not forage during this period. However, seals forage at all other times. Grey seals are generalist coastal feeders, foraging over large areas of the seabed at depths of up to 100 m and over distances of up to 50 km from haul-out sites (Duck, 2010; Mcconnell *et al.*, 2001). The permanent loss of up to 1,168 m^2 intertidal and seabed habitat below MLWS and the temporary disturbance of a wider up to 2,050 m^2 area of seabed and dredging plume within a further 200 m distance, are therefore very unlikely to significantly affect the prey abundance for the SAC population.

As the track from the jetty and slipway will follow the existing infrastructure, there will not be any significant loss of terrestrial habitat used by breeding or non-breeding seals. The nearest proposed turbine to the preferred low-lying land at Lavey Sound, below the 10 m contour line, is turbine 1 which is approximately 400 m from the pools, whereas the proposed location of turbine 6 is approximately 200 m from the pools at

the south of the island. In addition, turbine locations 1, 2, 3 and 5, located at the closest points to the shoreline, are backed by sea cliffs and therefore their hardstandings or connecting tracks are not accessible from the shore, and turbine locations 4 and 6 also have limited accessibility from the shore.

Therefore, although the proposed works will result in a loss and temporary disturbance of natural intertidal and seabed habitat potentially used by seals, it is concluded that the effect is likely to be insignificant given the large extent of suitable habitat available on both Faray and Holm of Faray and the large distances over which animals move, combined with the fact that seals can continue to haul out at these locations during operation and that prey abundance will not be significantly affected.

Habitat loss is therefore not likely to result in any adverse effect on the integrity of the SAC.

7.1.2 Visual Disturbance of Breeding Grey Seals on Land or when Foraging

7.1.2.1 Disturbance

The grey seal breeding season extends from mid-September to December, inclusive, with mothers and pups present on favoured parts of the shore at this time (Duck, 2010). Because seals are sensitive to anthropogenic disturbance, they choose remote locations to haul out, moult and breed (Duck, 2010). Faray is uninhabited but is nevertheless used for sheep grazing. The farmer regularly sails to the island to tend his livestock which graze most of Faray. The farmer arrives at the existing slipway and, therefore, does not gain access to the island via the key breeding area on Faray; namely the freshwater pools by Lavey Sound in the north of the island. Nor does he gain access via the area of pools near the southern tip; however, the existing slipway is c.300m from this area.

Visual disturbance occurs where a human activity disrupts or alters the animals' normal behaviour. Overt signs of seal response to visual disturbance from human activity grade from increased alertness, as evidenced by raised heads 'scanning' the surroundings, to moving towards the water and flushing into the water (Wilson 2005). Studies have reported the distances from the source of a disturbance that elicits a flushing into water response from grey seals varies with the type of disturbance. For example, Strong & Morris (2010) reported that grey seal mothers responded by flushing to the water when boats were 20–70m away, with no detectable disturbance at 150 m, but they also concluded that boat speed was more important than distance in eliciting a response. In contrast, Wilson *et al.* (2011) recorded grey seals flushing at average distances of 129–214 m from a seal survey zodiac.

Human disturbance on grey seal breeding beaches may result in interruption or disruption of mother-pup bonding and mothers nursing pups other than their own with apparent breakdown of normal mother-pup recognition (Fogden, 1971). Other effects include energetic costs and energetic deficit to pups, physiological stress and sometimes enforced move to distant or suboptimal habitat. Impact on moulting groups includes energy loss and stress, while impact on other haul-out groups causes loss of resting and digestion time and stress (Wilson, 2005). However, varying degrees of habituation to frequent non-harassing tour boats have also been reported for grey seals (Strong & Morris, 2010). Despite the frequent visits by tour boats to grey seal breeding beaches on Ramsey Island, west Wales, no reduction in reproductive rate is evident (Strong & Morris, 2010).

7.1.2.2 Impact

The nearest proposed turbine to the low-lying land preferred by the grey seals at Lavey Sound, and below the 10 m contour line, is turbine 1 which is approximately 400 m from the pools. Whereas the proposed location of turbine T6 is approximately 200 m from the pools at the south of the island. Construction activities, including movement of machinery and people, therefore have the potential to visually disturb breeding seals.

During operation, there will be a need to undertake periodic maintenance visits, and occasionally larger operations, such as potentially replacing a turbine blade. Such operations also have the potential to visually disturb breeding seals.

7.1.2.3 Effect

Using the distances reported by Strong & Morris (2010) and Wilson *et al.* (2011), it is considered that construction staff and machinery, as well as ship traffic, are likely to affect areas within 200 m of likely

breeding locations within the islands and any haul-out locations used in the breeding season. Taking a precautionary approach in the absence of data on breeding seals, this could result in the effects described above and affect a significant proportion of the breeding population.

During operation, larger operations, such as replacing a turbine blade, could be required within the breeding season. While it is unlikely to affect the SAC seal population as a whole, a major landing operation would likely have a significant effect on any breeding animals present in the vicinity of the landing facilities and works areas. Taking a precautionary approach in the absence of data on breeding seals, this could result in the effects described above, notably interruption or disruption of mother-pup bonding, energetic costs and energetic deficit to pups, physiological stress and sometimes enforced move to distant or suboptimal habitat, involving a significant proportion of the breeding population.

Owing to a lack of breeding-season data, it is not possible to rule out an adverse effect on the integrity of the SAC from visual disturbance impacts.

7.1.3 Noise Disturbance of Breeding Grey Seals on Land or when Foraging

7.1.3.1 Disturbance

Noise disturbance occurs where a human activity disrupts or alters the animals' normal behaviour. Overt signs of seal response to noise disturbance from human activity grade from increased alertness, as evidenced by raised heads 'scanning' the surroundings, to moving towards the water and flushing into the water (Wilson, 2005). Human noise disturbance on grey seal breeding beaches may result in interruption or disruption of mother-pup bonding and mothers nursing pups other than their own with apparent breakdown of normal mother-pup recognition (Fogden, 1971). Other effects include energetic costs and energetic deficit to pups, physiological stress and sometimes enforced move to distant or suboptimal habitat. Impact on moulting groups includes energy loss and stress, while impact on other haul-out groups causes loss of resting and digestion time and stress (Wilson, 2005).

The responses of marine mammals to sound depend on a range of factors, including sound pressure level, frequency, duration, and novelty of the noise source (Antarctic Treaty Consultative Meeting, 2008). The physical and behavioural state of the animals may also impact how individuals will respond to an auditory stimulus. Finally, the ambient acoustic and biotic features of the environment itself may affect how populations/individuals will respond to a stimulus (Hildebrand, 2005). The characteristic of the noise, in particular whether it is continuous or transient, and whether it is constant or changing is an important factor influencing the effect of anthropogenic noise on wildlife. Southall *et al.* (2008) proposed the thresholds listed in Table 2 for pinnipeds (seals species) in air, and the thresholds in Table 3 for pinnipeds underwater. Values are conservative because they incorporate thresholds for harbour seals, which are more sensitive to disturbance than grey seals. Where multiple threshold values are provided in Southall *et al.* (2008) based on different studies/species, the lower one is reproduced in Tables 2 and 3.

Table 2: Noise thresholds for pinniped injury and behavioural responses in air. From Southall* et al. *(2008))

Criteria Types	Sound Type		
	Single Pulses	Multiple Pulses	Non-pulses
Injury			
Sound pressure level	149 dB re: 20 µPa (peak) (flat)	149 dB re: 20 µPa (peak) (flat)	149 dB re: 20 µPa (peak) (flat)
Sound exposure level	144 dB re: 20 μPa^2s (M_{pa})	144 dB re: 20 μPa^2s (M_{pa})	144.5 dB re: 20 μPa^2s (M_{pa})
Behavioural response (higher than 'no observable response')			
Sound pressure level	109 dB re: 20 µPa (peak) (flat)	60 to <70 dB re: 20 µPa (peak) (flat)	110 to <120 dB re: 20 µPa (peak) (flat)
Sound exposure level	100 dB re: 20 μPa^2s (M_{pa})	N/a	N/a
Definitions:			

Criteria Types	Sound Type		
	Single Pulses	Multiple Pulses	Non-pulses
Sound Type	*Acoustic Characteristics (at source)*	*Examples*	
Single pulse	Single acoustic event; > 3-dB difference between received level using impulse vs equivalent continuous time constant	Single explosion; sonic boom; single airgun, watergun, pile strike, or sparker pulse; single ping of certain sonars, depth sounders, and pingers	
Multiple pulses	Multiple discrete acoustic events within 24 h; > 3-dB difference between received level using impulse vs equivalent continuous time constant	Serial explosions; sequential airgun, watergun, pile strikes, or sparker pulses; certain active sonar (IMAPS); some depth sounder signals	
Non-pulses	Single or multiple discrete acoustic events within 24 h; < 3-dB difference between received level using impulse vs equivalent continuous time constant	Vessel/aircraft passes; drilling; many construction or other industrial operations; certain sonar systems (LFA, tactical mid-frequency); acoustic harassment/deterrent devices; acoustic tomography sources (ATOC); some depth sounder signals	

Table 3: Noise thresholds for pinniped injury and behavioural responses underwater. From Southall et al. (2008))

Criteria Types	Sound Type		
	Single Pulses	Multiple Pulses	Non-pulses
Injury			
Sound pressure level	218 dB re: 20 µPa (peak) (flat)	218 dB re: 20 µPa (peak) (flat)	218 dB re: 20 µPa (peak) (flat)
Sound exposure level	186 dB re: 20 μPa^2s (M_{pa})	186 dB re: 20 μPa^2s (M_{pa})	203 dB re: 20 μPa^2s (M_{pa})
Behavioural response (higher than 'no observable response')			
Sound pressure level	212 dB re: 20 µPa (peak) (flat)	130 to <140 dB re: 20 µPa (peak) (flat)	100 to <110 dB re: 20 µPa (peak) (flat)
Sound exposure level	171 dB re: 20 μPa^2s (M_{pa})	N/a	N/a
Definitions:			
Sound Type	*Acoustic Characteristics (at source)*	*Examples*	
Single pulse	S71gle acoustic event; > 3-dB difference between received level using impulse vs equivalent continuous time constant	Single explosion; sonic boom; single airgun, watergun, pile strike, or sparker pulse; single ping of certain sonars, depth sounders, and pingers	
Multiple pulses	Multiple discrete acoustic events within 24 h; > 3-dB difference between received level using impulse vs equivalent continuous time constant	Serial explosions; sequential airgun, watergun, pile strikes, or sparker pulses; certain active sonar (IMAPS); some depth sounder signals	
Non-pulses	Single or multiple discrete acoustic events within 24 h; < 3-dB difference between received level	Vessel/aircraft passes; drilling; many construction or other industrial operations; certain sonar systems (LFA, tactical mid-frequency); acoustic harassment/deterrent	

Criteria Types	Sound Type		
	Single Pulses	Multiple Pulses	Non-pulses
	using impulse vs equivalent continuous time constant	devices; acoustic tomography sources (ATOC); some depth sounder signals	

7.1.3.2 Predicted noise

Onshore noise

As described in EIAR Chapter 9: Noise, during construction the main onshore source of potential noise disturbance would be (non-pulses) borrow pit extraction works, with estimated noise levels based on British Standard BS5228 as follows:

- 1 x hydraulic breaker (BS5228 Table C1, Item 9): 90 dB at 10 m;
- 1 x 32T excavator (BS5228 Table C2, Item 15): 76 dB at 10m; and
- 1 x 7.5T excavator (BS5228 Table C2, Item 8): 68 dB at 10m.

Other construction noise sources include site origination, slipway works, construction of access tracks and turbine hardstandings as well as installation of turbines, However, as shown in EIAR Table 9.14, which provides worst-case construction phase noise levels, these are all less significant than the borrow pit works.

Onshore noise during operation of the Proposed Development is not likely to be significant. As reported in EIAR Chapter 9, noise from non-turbine operational plant will comprise noise from substations only. The sound power level and final location of the substation(s) are yet to be finalised, but noise from the final type and location of the substation will be attenuated by acoustic enclosure (if required), such that it meets the derived non-turbine noise limits. A total sound power level of 93 dB(A), equivalent to a sound pressure level of 75 dB(A) at 10 m, would enable the noise limit to be met, and the installed plant will meet these criteria.

In the event of a large operation being needed, such as a turbine blade needing to be replaced, noise is likely to be comparable to predicted construction noise levels associated with installation of the turbines themselves.

Offshore noise

As described in EIAR Chapter 16: Underwater Noise, impact piling would likely be required to install the sheet piles for constructing the new landing jetty. The new landing jetty would be constructed using 0.6 m wide PU-28 sheet piles (154 in total) which are to be installed using a 30 kJ pile driving hammer (SL30). The size of the outer piled section of the landing jetty would be a maximum of 20 m x 20 m, and the overall length of sheet piled wall is estimated to be 92 m (154 sheet piles) including returns. Based on information for a similar structure elsewhere, the piles are likely to be 14 m in length and driven to 2 m minimum embedment or to refusal in rock. It is estimated that it would take approximately 40 minutes on average to drive each pile to refusal depth. The strike rate of the SL30 hammer is quoted as 84 blows per minute (BSP, 2015). It is further estimated from the above that the number of days when piles would be driven should be around 18 to 21 days in total. Assuming a 30 kJ hammer would be used, if it is further assumed that all of the hammer energy is converted to sound, the SLE calculated from Equation 10 would be 216 dB re $1\mu Pa^2m^2s$. However, field measurements from other studies (De Jong and Ainslie, 2008; Ainslie *et al*., 2012) have shown that only a small fraction of the total hammer energy is converted into sound with values in the range of 0.3 % to 10 %, with an average of around 1 %. More recently, there has been growing consensus amongst various authors that the conversion factor is more likely to be lower, at about 0.5 % (Dahl *et al*., 2015; Marine Scotland, 2019). EIAR Chapter 16: Underwater Noise uses a hammer energy conversion factor of 0.5 % for assessing behavioural effects, resulting in a SLE of 193 dB re $1\mu Pa^2m^2s$. For assessing injury to mammals (Temporary Threshold Shift, TTS, and Permanent Threshold Shift, PTS), a more precautionary value of 1 % was applied to the 30 kJ hammer energy, resulting in a source level (SLE) for percussive piling of 196 dB re $1\mu Pa^2m^2s$.

7.1.3.3 Effect

Onshore noise

The values provided above suggest that noise emissions from the onshore elements of the works are unlikely to result in an impact on breeding grey seals on land, because the loudest noise sources are likely to be below the thresholds for a behavioural response.

As described in EIAR Chapter 8: Ecology and Nature Conservation, in-air noise propagation will attenuate more quickly by comparison to in-water noise propagation. However, Southall *et al.* (2007) highlight that behavioural disturbance (as a result of noise) is difficult to quantify, due to highly variable reactions and specific context making the reactions less predictable. For Faray, this has implications for any seals hauled-out on the shoreline in relatively close proximity to the new landing jetty piling works during construction, as noise disturbance will likely cause animals to take to the water where the noise levels will be higher and therefore more potentially damaging. The distance over which this applies has not been quantified, but the high source level of 196 dB re 1µPa^{2}m^{2}s would cause injury to seals in the vicinity of the piling works, conservatively assumed to be seals within 500 m, and cause a behavioural response in breeding animals present at pools near the southern tip of Faray. In the absence of mitigation, this is likely to be a significant effect during the construction phase only.

It is concluded that onshore noise impacts during construction could result in an adverse effect on the integrity of the SAC.

Offshore noise

In the marine environment percussive piling at 196 dB re 1µPa^{2}m^{2}s exceeds the thresholds for both behavioural response and injury to grey seals hauling out and exceeds the thresholds for behavioural response and approximates the threshold for injury for animals underwater. There will be noise attenuation with distance, and EIAR Chapter 16: Underwater Noise calculates the zone within which the permanent (PTS) and temporary (TTS) thresholds are exceeded for the Phocid Pinnipeds hearing group (which includes grey seals). This is done assuming standard mitigation as required under the JNCC piling protocol (JNCC, 2010). Specifically, the underwater noise modelling assumed a soft start procedure would be in place. The model predicts no exceedance of the PTS threshold for Phocid Pinnipeds; however, it does predict a maximum distance within which the TTS criteria for Phocid Pinnipeds is exceeded of 1,980 m, with the area of TTS threshold exceedance being 1.35 km^2. This was concluded to have the potential to temporarily impact a significant 26% of the local grey seal population (based on site specific seal survey data). Without mitigation this injury effect would be greater. In the absence of mitigation, this is therefore a likely significant effect.

Behavioural disturbance of grey seals from noise is likely to occur over a larger area compared to the areas of potential injury described above. Modelling reported in EIAR Chapter 16, suggests that under standard mitigation (soft-start only) the maximum distance within which low-level disturbance (140 dB re 1µPa) may occur for grey seals is predicted to cover an area of 26.6 km^2. High-level disturbance is predicted to occur over an area of 8.0 km^2. Without mitigation this effect would be greater. Given that Faray is located entirely within this distance, in the absence of mitigation, this is therefore a likely significant effect.

As described in EIAR Chapter 8: Ecology and Nature Conservation, in-air noise propagation will attenuate more quickly by comparison to in-water noise propagation. However, Southall *et al.* (2007) highlight that behavioural disturbance (as a result of noise) is difficult to quantify, due to highly variable reactions and specific context making the reactions less predictable. For Faray, this has implications for any seals hauled-out on the shoreline in relatively close proximity to the new landing jetty piling works, as noise disturbance will likely cause animals to take to the water where the noise levels will be higher and therefore more potentially damaging. The distance over which this applies has not been quantified, but the high source level of 196 dB re 1µPa^{2}m^{2}s would cause injury to seals in the vicinity of the piling works, conservatively assumed to be seals within 500 m and cause a behavioural response in breeding animals present at pools near the southern tip of the island. In the absence of mitigation, this is therefore a likely significant effect.

During operation, some behavioural changes may result from noise generated from occasional vessel movements during maintenance visits, with seals tending to avoid vessels within a distance of approximately 200 m to 500 m, and this will affect the area by the landing jetting and slipway. This disturbance will be of a short duration and the sound source levels relatively low, and seals are likely to move away from the impact

zone as vessels arrive at or leave Faray. The level of activity is likely to be broadly comparable to the farmer making visits to the island. Therefore, the magnitude of impact during operation is predicted to be negligible.

Overall, it is concluded that, in the absence of mitigation, offshore noise impacts from piling could result in an adverse effect on the integrity of the SAC.

7.1.4 Disturbance of the Prey of Breeding Grey Seals

Grey seals are opportunistic feeders and probably take whatever fish are most abundant. However, sand eels and cod are grey seal's most important prey. As described in EIAR Chapter 16: Underwater Noise, underwater sound from anthropogenic activities has the potential to have adverse impacts on fish. Mortality from underwater sound is usually associated with being very close to the acoustic source due to the high peak pressure levels, particularly from pulsed sounds such as seismic sources or pile driving. Severe injury which leads to death of the individual is also possible within a certain distance from the acoustic source. These injuries are associated with the rapid and large changes in pressure that an animal is exposed to, rather than whether they can hear the sound. It is likely that the distance over which the behavioural effects are significant are on a smaller scale than compared to the distances over which grey seals exhibit behavioural responses. It is also recognised that fish species are highly mobile and given the extent of habitat can easily move away from underwater noise sources. Given that grey seals are known to forage up to 50 km, the impact on prey species (which are highly mobile) is unlikely to result in significant effects.

It is concluded that disturbance of prey will not result in an adverse effect on the integrity of the SAC.

7.1.5 Disturbance of Non-breeding Grey Seals Hauling out or in the Sea

Conclusions reached above, in the section assessing effects of piling noise disturbance on breeding seals when foraging, apply to non-breeding grey seals too, albeit on a smaller scale as the latter are likely move further from Faray. In the absence of mitigation, this is therefore a significant adverse effect.

It is concluded that, in the absence of mitigation, noise disturbance of non-breeding grey seals will result in an adverse effect on the integrity of the SAC.

7.1.6 Disturbance of the Prey of Non-breeding Grey Seals

Conclusions reached above, in the section assessing effects of piling noise disturbance on the prey of breeding seals, apply to non-breeding grey seals too, albeit on a smaller scale as the latter are likely move further from Faray. In the absence of mitigation, this is therefore not considered to result in an adverse effect.

It is concluded that disturbance of prey will not result in an adverse effect on the integrity of the SAC.

7.1.7 Disturbance from Increased Ship Traffic

Grey seals use sound for communication, orientation, navigation and for locating predators and prey, and they may therefore be vulnerable to background noise masking signals of interest (Southall *et al*., 2000). The main issue concerns shipping traffic, rather than smaller vessels, because low-frequency sounds produced by the seals overlap with the low-frequency sounds produced by shipping vessels (Richardson *et al*., 1995).

As described in EIAR Chapter 17, Marine Water and Sediment Quality, construction will require local capital dredging at the Proposed Development site, likely to be conducted by a backhoe dredger, supported by a barge, which will be on site for up to two weeks. As described in EIAR Appendix 12.1: Transport Assessment, the peak of marine traffic would subsequently occur in May of the first year of construction, with 16 vessel arrivals per day. Table 4 breaks down vessel movements into four types. Apart from in May of Year 1, most arrivals at Faray would be a small boat moving staff to and from the island. Deliveries would initially be by landing craft, with a ferry-type vessel (which can be loaded with trailers) being used later when the new extended slipway has been constructed, and an Abnormal Indivisible Loads (AIL) delivery vessel making a daily delivery in the final three months of construction when the jetty has been constructed.

As discussed in Chapter 17, dredging is expected to last up to two weeks with a backhoe and hopper barge operation assumed as the methodology. Due to the distance from the dredging site to the disposal site, the backhoe dredger will operate most efficiently if two hopper barges are provided to the works, or the backhoe operates daytime only operation with disposal occurring by the hopper barge at the end of the shift.

Table 4: Vessel arrival pattern (arrivals at Faray per day)

Vessel	Year 1							Year 2					
	Mar	Apr	May	Jun	Jul	Aug		Mar	Apr	May	Jun	Jul	Aug
Landing Craft	1	4	10	0	0	0		0	0	0	0	0	0
Ferry-type vessel	0	0	0	2	2	1		3	3	2	1	2	1
Staff Work Boat	4	6	6	6	6	6		6	6	6	6	6	6
AIL Delivery Vessel	0	0	0	0	0	0		0	0	0	1	1	1

The vessel traffic is likely to deter grey seals from swimming into the zone of impact, which itself would be concentrated in a zone southeast of Faray where the landing jetty and slipway would be located. This area is used by the farmer who sails to the island to tend his livestock arriving at the existing slipway. Although the impact will be much more frequent, it is likely to affect a similar geographical area in the southeast of Faray. Seals are likely to move to other parts of Faray, away from the 200 m zone of impact, or to Holm of Faray. This is, therefore, concluded to not be a significant effect.

As described in EIAR Chapter 8: Ecology and Nature Conservation, during operation some behavioural changes are likely from occasional vessel movements during maintenance visits, with seals tending to avoid the vessels within a distance of approximately 200 m to 500 m and be confined to the area close to the landing jetting and slipway. However, because the disturbance will be of a very short duration and the magnitude of impact from the sound source levels relatively low, it is concluded to not result in significant effects.

It is concluded that vessel-related disturbance of seals will not result in an adverse effect on the integrity of the SAC.

7.2 Sanday SAC

7.2.1 Noise Disturbance of Harbour Seals in the Water

7.2.1.1 Disturbance impacts

Similar to grey seals, harbour seals could be vulnerable to underwater noise impacts. The threshold values listed in Table 3 also apply to harbour seal.

7.2.1.2 Predicted noise

As described in EIAR Chapter 16: Underwater Noise, impact piling would likely be required to install the sheet piles for constructing the new landing jetty. The new landing jetty would be constructed using 0.6 m wide PU-28 sheet piles (154 in total) which are to be installed using a 30 kJ pile driving hammer (SL30). The size of the outer piled section of the landing jetty would be a maximum of 20 m x 20 m, and the overall length of sheet piled wall is estimated to be 92 m (154 sheet piles) including returns. Based on information for a similar structure elsewhere, the piles are likely to be 14 m in length and driven to 2 m minimum embedment to refusal in rock. It is estimated that it would take approximately 40 minutes on average to drive each pile to refusal depth. The strike rate of the SL30 hammer is quoted as 84 blows per minute (BSP, 2015). It is further estimated from the above that the number of days when piles would be driven should be around 18 to 21 days in total. Assuming a 30 kJ hammer would be used, if it is further assumed that all of the hammer energy is converted to sound, the SLE calculated from Equation 10 would be 216 dB re $1\mu Pa^2m^2s$. However, field measurements from other studies (De Jong and Ainslie, 2008; Ainslie *et al*., 2012) have shown that only a small fraction of the total hammer energy is converted into sound with values in the range of 0.3 % to 10 %, with an average of around 1 %. More recently, there has been growing consensus amongst various authors that the conversion factor is more likely to be lower, at about 0.5 % (Dahl *et al*., 2015; Marine Scotland, 2019). EIAR Chapter 16: Underwater Noise uses a hammer energy conversion factor of 0.5 % for assessing behavioural effects, resulting in a SLE of 193 dB re $1\mu Pa^2m^2s$. For assessing injury to mammals (Temporary

Threshold Shift, TTS, and Permanent Threshold Shift, PTS), a more precautionary value of 1 % was applied to the 30 kJ hammer energy, resulting in a source level (SLE) for percussive piling of 196 dB re 1µPa^{2}m^{2}s.

Operational noise from the Proposed Development will be limited to occasional vessel movements during maintenance visits.

7.2.1.3 Significance

Percussive piling at 196 dB re 1µPa^{2}m^{2}s exceeds the thresholds for behavioural response and approximates the threshold for injury for animals underwater. There will be noise attenuation with distance, and EIAR Chapter 16: Underwater Noise calculates the zone in within which the PTS and TTS thresholds are exceeded for the Phocid Pinnipeds hearing group (which includes harbour seals). This is done assuming standard mitigation as required under the JNCC piling protocol (JNCC, 2010). Specifically, the underwater noise modelling assumed a soft start procedure would be in place. The model predicts no exceedance of the PTS threshold for Phocid Pinnipeds, however, it does predict a maximum distance within which the TTS criteria for Phocid Pinnipeds is exceeded of 1,980 m, with the area of TTS threshold exceedance being 1.35 km^2. Because the impact zone is over 10 km from Sanday, it is very unlikely that a significant number of animals of the 1,350 SAC population will be present within the impact zone, and other disturbance from construction crew sailing to Faray in the time leading up to piling activities commencing is itself likely to cause animals to move away from the area. This is therefore concluded not to result in significant effects.

Behavioural disturbance of harbour seals is predicted to occur over a larger area compared to the areas of potential injury described above. Modelling reported in EIAR Chapter 16, suggests that under standard mitigation (soft-start only) the maximum distance within which low-level disturbance (140 dB re 1µPa) may occur for harbour seals is predicted to cover an area of 26.6 km^2. High-level disturbance is predicted to cover an area of 8.0 km^2. Without mitigation this effect would be greater. However, the behavioural impacts would temporary and reversible, and the proportion of the Sanday harbour seals population actually affected is likely to be small. However, as it is difficult to quantify, in the absence of mitigation it is concluded to result in significant effects.

Therefore, it cannot be ruled out that noise disturbance impacts, in the absence of mitigation, will result in an adverse effect on the integrity of the SAC.

7.2.2 Disturbance of the Prey of Harbour Seals

Like grey seals, harbour seals are opportunistic feeders and probably take whatever fish are most abundant. However, sand eels, whiting, herring and flatfish are considered important prey. As described in EIAR Chapter 16: Underwater Noise, underwater sound from anthropogenic activities has the potential to have adverse impacts on fish. Mortality from underwater sound is usually associated with being very close to the acoustic source due to the high peak pressure levels, particularly from pulsed sounds such as seismic sources or pile driving. Severe injury which leads to death of the individual is also possible within a certain distance from the acoustic source. These injuries are associated with the rapid and large changes in pressure that an animal is exposed to rather than whether they can hear the sound. It is likely that the distance over which effects are significant apply on a smaller scale than the effect over which harbour seals exhibit behavioural responses. Given the up to 50 km foraging distances of harbour seals and low proportion of Sanday SAC harbour seals likely to be present, this is unlikely to result in significant effects.

Disturbance impacts on prey species are therefore concluded to not result in an adverse effect on the integrity of the SAC.

7.2.3 Disturbance from Increased Ship Traffic

Harbour seals use sound for communication, orientation, navigation and for locating predators and prey, and they may therefore be vulnerable to background noise masking signals of interest (Southall *et al.*, 2000). The main issue concerns shipping traffic, rather than smaller vessels, because low-frequency sounds produced by the seals overlap with the low-frequency sounds produced by shipping vessels (Richardson *et al.*, 1995).

As described in EIAR Appendix 12.1: Transport Assessment, the peak of marine traffic would occur in May of the first year of construction, with 16 vessel arrivals per day. Table 4 breaks down vessel movements into

four types. Apart from in May of Year 1, most arrivals at Faray would be a small boat moving staff to and from the island. Deliveries would initially be by landing craft, with a ferry-type vessel being used when the new extended slipway has been constructed, and an AIL delivery vessel making daily deliveries in the final three months of construction when the jetty has been constructed. Effects from the increase in vessels are likely to only relate to the AIL delivery vessel, but this impact would only occur once a day for three months and against a background of the impacts from other construction vessel traffic. The latter are likely to deter harbour seals from swimming into the zone of impact, which itself would be concentrated in a zone southeast of Faray where the jetty and slipway would be located, and where only a small fraction of the 1,350 SAC population is likely to be present. This is therefore unlikely to be a significant effect.

Disturbance from increased ship traffic is therefore concluded to not result in an adverse effect on the integrity of the SAC.

8. Mitigation

8.1 Faray and Holm of Faray SAC

Mitigation is needed to reduce the potential for likely significant effects associated with visual disturbance on breeding seals and noise disturbance impacts from percussive piling on both breeding and non-breeding seals.

8.1.1 Timing

As described in EIAR Chapter 8: Ecology and Nature Conservation, the following will apply to construction timings:

- No construction activities will take place within the grey seal breeding season, which extends from mid-September to December. Specifically the period from 15 September to 31 December will be avoided. In addition, underwater piling of the jetty will not take place any later than 15 August.
- During operation, maintenance checks, including normal repair works/replacement of parts, will be timed to avoid the seal breeding season (mid-September to December), where possible; if visits are still required during the breeding visits, then these will be limited to the minimum, in order to reduce the potential for adverse impacts to any breeding seals close to the landing facility.
- Any major planned maintenance will be programmed to avoid the seal breeding season, wherever possible. In the unlikely event that this would not be possible (e.g. turbine failure), the *Operational Management Plan*, which will include emergency plans and appropriate mitigations, will be followed. This will include method statements for such unplanned major maintenance events and the required mitigations. These method statements will be discussed and agreed with NatureScot prior to development commencing. Regular, detailed inspections will be undertaken during the non-breeding season, this will reduce the likelihood of major maintenance works occurring during the breeding season. In the very unlikely event that major unplanned maintenance work is required during the breeding season, NatureScot will be notified in accordance with the method statement.
- Maintenance check vessel routing will follow the same method statement as applied to the construction phase, in order to minimise disturbance to the seal populations on the haul-outs passed *en route* to the island.

8.1.2 Piling

As described in EIAR Chapter 16: Underwater Noise, a range of standard mitigation measures in accordance with the JNCC piling protocol (2010) have already been put in place as part of the iterative design process to minimise the potential risks to marine mammals, and in particular local grey seals, in the area. The standard measures, as detailed in JNCC (2010), built into design are listed below:

- Mitigation zone: implementation of a mitigation zone where the area is monitored either visually and/or acoustically (via Passive Acoustic Monitoring, PAM) for marine mammals prior to piling

commencing. Monitoring will be undertaken by a suitably qualified Marine Mammal Observer (MMO) / PAM operative. The extent of the mitigation zone will be agreed with the consenting authority prior to the works taking place but will have a minimum radius of 500 m.

- Pre-piling search and delayed start: the mitigation zone will be monitored visually by the MMO and/or acoustically via PAM for a period of at least 30 minutes. Piling will not commence if marine mammals are detected within the mitigation zone or until 20 minutes after the last visual or acoustic detection.
- Piling at night or in poor visibility will be avoided: piling activities would not commence during periods of darkness, poor visibility (e.g. fog) or a rough sea state where it is not conducive to visual mitigation as there is a greater risk of failing to detect a marine mammal within the mitigation zone.
- Soft-start: the piling activities will employ a soft-start, where the piling power is gradually ramped up incrementally until full power is achieved. This is to allow for any marine mammals within the area to move away from the noise source and will reduce the likelihood of exposing marine fauna to sounds which can cause injury. The soft-start period will be a minimum of 20 minutes. If a marine mammal enters the area during the soft start then, wherever possible, the piling would cease, or at the least the power would not be increased until the marine mammal exits the mitigation zone and there is no further marine mammal detection for 20 minutes. When piling at full power, there is no requirement to cease piling or reduce the power if a marine mammal is detected in the mitigation zone as it is deemed to have entered "voluntarily". JNCC (2010) does recognise in the piling protocol that it may not be technically possible to stop piling at full power until the pile is in position.
- Break in piling activity: If there is a pause in the piling operations for a period of greater than 10 minutes, then the pre-piling search and soft-start procedure will be repeated before piling recommences. If a watch has been kept during the piling operation, the MMO or PAM operative will be able to confirm the presence or absence of marine mammals, and it may be possible to commence the soft-start immediately. However, if there has been no watch, the complete pre-piling search and soft-start procedure will be undertaken.

The underwater noise modelling recommends that a soft-start procedure is in place, as per the JNCC piling protocol (2010), to ensure seals can vacate the area. However, the modelling results are conservative estimates as, in line with the piling protocol, a search of an established 500 m zone around the operations would be undertaken to ensure the area is clear of seals prior to the soft-start commencing. Therefore, the number of seals potentially within the areas of TTS and PTS exceedance will be less than those calculated.

Additional mitigation will include use of bubble curtains, which reduce low-frequency sound in the source level spectrum. As described in EIAR Chapter 16, bubble curtains work by injecting compressed air through a perforated ring laid on the seabed around the pile, creating a ring of air bubbles which rise to the surface. The difference in impedance between water and air results in sound being absorbed and scattered as it passes from the water into the air bubbles (Koschinski and Lüdermann, 2013). This in turn reduces the zone of underwater noise impacts.

As stated above, piling would not take place any later than 15 August. This will ensure that piling is out with both the breeding season and for a month prior to when seals are expected to return to the island. This will therefore effectively remove the potential for impacts on breeding seals.

8.1.3 Delivery of Materials

As described in EIAR Chapter 8: Ecology and Nature Conservation, delivery of staff, plant and materials to the island will be controlled though development of method statements to provide the least-disturbing route to site; this could potentially include varying the route from the port of origin.

During operation, maintenance check vessel routing would follow the same method statement as applied to the construction phase, in order to minimise disturbance to the seal populations on the haul-outs passed *en route* to the island.

8.1.4 Staff Movement

As described in EIAR Chapter 8: Ecology and Nature Conservation, there will be strict control of human presence near hauled-out seals. In general, no personnel would approach within 50 m of a seal resting on the shore. However, Method Statements and site staff protocols/toolbox talks would be in place prior to all construction activities commencing, with the sensitivities of the adjacent habitats and their wildlife (and how to reduce/avoid impacts) explained to site personnel prior to commencement.

8.1.5 Plant Specifications

As described in EIAR Chapter 8: Ecology and Nature Conservation, although mitigation is not needed, construction plant will be selected for the lowest practical noise output, with sound barriers also to be available for deployment around stationary plant, such as generators.

8.1.6 Borrow Pit Excavation

As described in EIAR Chapter 8: Ecology and Nature Conservation, although mitigation is not needed, additional good practice mitigation will be employed to reduce noise impacts:

- Control of borrow pit works to limit duration of disturbance events caused by material extraction. This will be covered through development of a borrow pit operations Method Statement;
- Use of sound barriers along the coastal edge of the secondary borrow pit to reduce noise propagation from extraction operations;
- Restrict extraction of material from the secondary borrow pit to periods when no seals are present within the landing facility and Scammalin Bay area. Where this is not possible, use of a standard "soft-start" procedure (i.e. slowly increasing the level of noise in the works area, prior to commencing full operations), to avoid causing a potentially stressful "scare" reaction to a sudden noise, may reduce the intensity of any such disturbance events.

8.2 Sanday SAC

Mitigation is needed to reduce significant effects associated with noise impacts from percussive piling on harbour seals.

8.2.1 Piling

As described in EIAR Chapter 16: Underwater Noise, a range of standard mitigation measures in accordance with the JNCC piling protocol (2010) have already been put in place as part of the iterative design process to minimise the potential risks to marine mammals, and in particular local harbour seals, in the area. The standard measures, as detailed in JNCC (2010), built into design are listed below:

- Mitigation zone: implementation of a mitigation zone where the area is monitored either visually and/or acoustically (via Passive Acoustic Monitoring, PAM) for marine mammals prior to piling commencing. Monitoring will be undertaken by a suitably qualified Marine Mammal Observer (MMO) / PAM operative. The extent of the mitigation zone will be agreed with the consenting authority prior to the works taking place but will have a minimum radius of 500 m.
- Pre-piling search and delayed start: the mitigation zone should be monitored visually by the MMO and/or acoustically via PAM for a period of at least 30 minutes. Piling will not commence if marine mammals are detected within the mitigation zone or until 20 minutes after the last visual or acoustic detection.
- Avoid piling at night or in poor visibility: piling activities will not commence during periods of darkness, poor visibility (e.g. fog) or a rough sea state where it is not conductive to visual mitigation as there is a greater risk of failing to detect a marine mammal within the mitigation zone.
- Soft-start: the piling activities will employ a soft-start, where the piling power is gradually ramped up incrementally until full power is achieved. This is to allow for any marine mammals within the area to move away from the noise source and will reduce the likelihood of exposing marine fauna

to sounds which can cause injury. The soft-start period will be a minimum of 20 minutes. If a marine mammal enters the area during the soft start then, wherever possible, the piling should cease, or at the least the power should not be increased until the marine mammal exits the mitigation zone and there is no further marine mammal detection for 20 minutes. When piling at full power, there is no requirement to cease piling or reduce the power if a marine mammal is detected in the mitigation zone as it is deemed to have entered "voluntarily". JNCC (2010) does recognise in the piling protocol that it may not be technically possible to stop piling at full power until the pile is in position.

- Break in piling activity: If there is a pause in the piling operations for a period of greater than 10 minutes, then the pre-piling search and soft-start procedure will be repeated before piling recommences. If a watch has been kept during the piling operation, the MMO or PAM operative will be able to confirm the presence or absence of marine mammals, and it may be possible to commence the soft-start immediately. However, if there has been no watch, the complete pre-piling search and soft-start procedure will be undertaken.

The underwater noise modelling recommends that a soft-start procedure is in place, as per the JNCC piling protocol (2010), to ensure seals can vacate the area. However, the modelling results are conservative estimates as, in line with the piling protocol, a search of an established 500 m zone around the operations would be undertaken to ensure the area is clear of marine mammals prior to the soft-start commencing. Therefore, the number of animals potentially within the areas of TTS and PTS exceedance will be less than those calculated.

Additional mitigation will include use of bubble curtains, which reduce low-frequency sound in the source level spectrum. As described in EIAR Chapter 16, bubble curtains work by injecting compressed air through a perforated ring laid on the seabed around the pile, creating a ring of air bubbles which rise to the surface. The difference in impedance between water and air results in sound being absorbed and scattered as it passes from the water into the air bubbles (Koschinski and Lüdermann, 2013). This in turn reduces the zone of underwater noise impacts.

9. Residual Effects

9.1 Faray and Holm of Faray SAC

9.1.1 Visual Disturbance

With mitigation in place, visual disturbance impacts will be significantly reduced, and it is concluded that it is very unlikely there will be adverse effect on the integrity of the SAC .

9.1.2 Noise Disturbance

As described in EIAR Chapter 16: Underwater Noise, the residual impacts using both standard mitigation and bubble curtain mitigation were re-assessed using the empirically derived peak SPL metric. The distances to the PTS and TTS injury threshold were predicted to be zero. Thus, injury effects are not significant.

Disturbance was assessed using thresholds of 140 dB re 1µPa (rms) and 160 dB re 1µPa (rms), plotted in EIAR Appendix 16.1, EIAR Figure 16.18. Maximum distances to these thresholds from the pile are provided in EIAR Table 26.23. As shown in EIAR Appendix 16.1, the number of seals potentially disturbed was significantly reduced from 922 animals (1.68% of the regional population, 25.77% of the estimated 3,578 population of the Faray and Holm of Faray SAC) affected by low disturbance noise under standard mitigation, to 315 animals (0.58% of the regional population, 8.8% of the estimated SAC population) being affected when using both standard mitigation and bubble curtain. These low-noise impacts are unlikely to result in other than short-temporary and fully reversible behavioural changes. For high disturbance, the figures were 277 animals (0.51% of the regional population, 7.74% of the estimated SAC population) affected under standard mitigation to 3.81 animals (0.01% of the regional population, 0.11% of the estimated SAC population)

affected when using both standard mitigation and bubble curtain. Thus, behavioural effects are not significant.

It is concluded that noise disturbance will not result in adverse effects on the integrity of the SAC.

9.2 Sanday SAC

9.2.1 Noise Disturbance

As described in EIAR Chapter 16: Underwater Noise, the residual impacts using both standard mitigation and bubble curtain mitigation were re-assessed using the empirically derived peak SPL metric. The distances to the PTS and TTS threshold were predicted to be zero. Thus, similar to Faray and Holm of Faray SAC, injury effects on the integrity of the Sanday SAC are concluded to be not significant.

Disturbance was assessed using thresholds of 140 dB re 1µPa (rms) and 160 dB re 1µPa (rms), plotted in EIAR Appendix 16.1, EIAR Figure 16.18. Maximum distances to these thresholds from the pile are provided in EIAR Table 26.23. As shown in EIAR Appendix 16.1, the number of seals potentially disturbed was significantly reduced from 5.06 animals (0.02% of the regional population, 0.37% of the estimated 1,350 population of the Sanday SAC) affected by low disturbance noise under standard mitigation, to 1.73 animals (0.01% of the regional population, 0.13% of the estimated SAC population) being affected when using both standard mitigation and bubble curtain. These low-noise impacts are unlikely to result in other than short-temporary and fully reversible behavioural changes. For high disturbance, the figures were 1.52 animals (0.01% of the regional population, 0.11% of the estimated SAC population) affected under standard mitigation to 0.02 animals (0.0001% of the regional population, 0.0015% of the estimated SAC population) affected when using both standard mitigation and bubble curtain. Thus, behavioural effects are not significant

It is concluded that noise disturbance will not result in adverse effects on the integrity of the SAC.

10. Conclusion

A range of impacts relating to the Proposed Development have been identified with the potential for likely significant effects on the conservation objectives Faray and Holm of Faray SAC and Sanday SAC designations, specifically their qualifying seal features.

In the absence of mitigation, significant effects from visual and noise disturbance on the Faray and Holm of Faray SAC cannot be ruled out. However, with a range of mitigation in place, notably including a commitment to not undertake construction works during the seal breeding season and use of the JNCC piling protocol and bubble curtains, there will be no adverse effects on the integrity of the SAC.

In the absence of mitigation, there are also likely significant effects from piling disturbance on the Sanday SAC. However, with a range of mitigation in place, notably including a commitment use of the JNCC piling protocol and bubble curtains, there will be no adverse effects on the integrity of the SAC.

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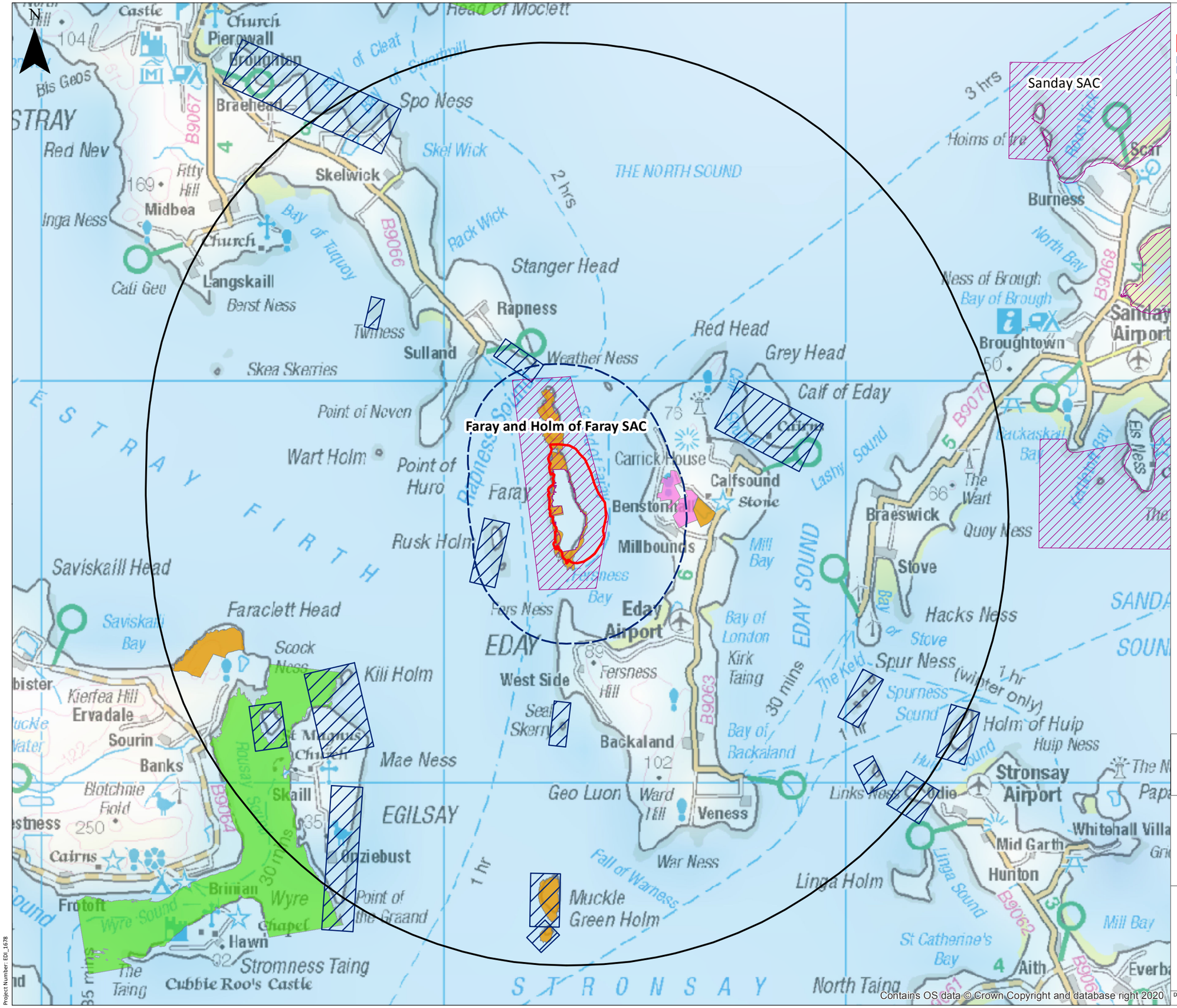
Figures



N

Faray and Holm of Faray SAC

Point of Dogs Bones
Lavey Sound
The Point of Ring
Quoy Noust
Chambered Cairn (remains of)
Muller Geo
Point of Tobar
Skibbie Geo
Caves
Quoy
Natural Arch
Surrie Geo
T1
Doggert Cat
Cave
Starry Geo
Djubi Geo
T2
Hamar
Sprs
Ringie Geo
Caves
The Nev
T4
Faray
T3
Blue Geo
Windywall
Langie Geos
Gangstaiths
Holland
T5
Well Geo
Torhellia Geo
Bight of Sandbister
Ness
Sheep Dip
T6
Landing Jetty
New Extended Slipway
Muckle Skerry
Scammalin
Little Skerry
Point of Scaraber
Sound of Faray
Ferry
Geo
Stack of Y
Greenan Nev
Sheepfold
West Rinch
Rusk Holm
Sheepfold
Fort of Rusk Holm

KEY

- Site Boundary
- Turbines Layout (Symbol does not indicate tower dimensions just its location)
- Access Track (including marine access)
- Permanent Hardstandings
- Temporary Hardstanding
- Temporary Construction Compound
- Substation
- Borrow Pit Search Areas
- Indicative Met Mast Location (Symbol does not indicate met mast footprint)
- Special Area of Conservation
- Marine High Water Springs (MHWS)
- Marine Low Water Springs (MLWS)

0 0.25 0.5 km

Scale 1:11,200 @ A3

ORKNEY ISLANDS COUNCIL

ITPENERGISED Earth. Smart. Solutions

Orkney's Community Wind Farm Project - Faray

Shadow HRA Figure 2
Proposed New Extended Slipway and Landing Jetty

Date:	Drawn by:	Checked by:	Version:
27/05/2021	GT	PD	V1

Project Number: EDI_1677

Appendices

Appendix A: Data Sheet for Faray and Holm of Faray SAC

NATURA 2000 – STANDARD DATA FORM

Special Areas of Conservation under the EC Habitats Directive (includes candidate SACs, Sites of Community Importance and designated SACs).

Each Natura 2000 site in the United Kingdom has its own Standard Data Form containing site-specific information. The data form for this site has been generated from the Natura 2000 Database submitted to the European Commission on the following date:

22/12/2015

The information provided here, follows the officially agreed site information format for Natura 2000 sites, as set out in the Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011 (2011/484/EU).

The Standard Data Forms are generated automatically for all of the UK's Natura 2000 sites using the European Environment Agency's Natura 2000 software. The structure and format of these forms is exactly as produced by the EEA's Natura 2000 software (except for the addition of this coversheet and the end notes). The content matches exactly the data submitted to the European Commission.

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

Further technical documentation may be found here
http://bd.eionet.europa.eu/activities/Natura_2000/reference_portal

As part of the December 2015 submission, several sections of the UK's previously published Standard Data Forms have been updated. For details of the approach taken by the UK in this submission please refer to the following document:
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

More general information on Special Areas of Conservation (SACs) in the United Kingdom is available from the SAC home page on the JNCC website. This webpage also provides links to Standard Data Forms for all SACs in the UK.

Date form generated by the Joint Nature Conservation Committee
25 January 2016.

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE **UK0017096**

SITENAME **Faray and Holm of Faray**

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1. SITE IDENTIFICATION

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1.1 Type	1.2 Site code
B	UK0017096

1.3 Site name

Faray and Holm of Faray

1.4 First Compilation date	1.5 Update date
1998-10	2015-12

1.6 Respondent:

Name/Organisation:	Joint Nature Conservation Committee
Address:	Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY
Email:	

Date site proposed as SCI:	1998-10
Date site confirmed as SCI:	2004-12
Date site designated as SAC:	2005-03
National legal reference of SAC designation:	Regulations 8 and 11-15 of The Conservation (Natural Habitats, &c) Regulations 1994 (http://www.legislation.gov.uk/uksi/1994/2716/contents/made).

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
-2.825	59.225

2.2 Area [ha]:

781.33

2.3 Marine area [%]

92.2

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKZZ	Extra-Regio
UKM6	Highlands and Islands

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

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3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Global
1110			468.8		M	D			
1170			70.32		M	D			
8330			1.02		G	D			

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.
M	1364	Halichoerus grypus			p	1001	10000	i		M	B	A	B	B

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N05	6.0
N01	80.0
N07	0.5
N06	0.5
N14	10.0
N04	3.0
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: clay,neutral,acidic,sedimentary,sandstone 2 Terrestrial: Geomorphology and landscape: island,coastal,crags/ledges 3 Marine:
Geology: shingle,sandstone/mudstone,sand,boulder,sedimentary 4 Marine: Geomorphology: intertidal sediments (including sandflat/mudflat),intertidal rock,geos (rocky inlets),cliffs,subtidal rock (including rocky reefs),open coast (including bay),cave/tunnel

4.2 Quality and importance

Halichoerus grypus for which this is considered to be one of the best areas in the United Kingdom.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures	Pollution (optional)	inside/outside [i|o|b]

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]

	[code]	[code]	
M	F01		B
M	H06		O
M	G05		I

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,
T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Scottish Natural Heritage 'site link' below provides access to the Conservation Objectives for this site. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://gateway.snh.gov.uk/sitelink/documentview.jsp?p_pa_code=8254&p_Doc_Type_ID=29

http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	14.8	UK00	85.2		

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Scottish Natural Heritage
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

- [ ] Yes
- [ ] No, but in preparation
- [X] No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE NATURA 2000 STANDARD DATA FORMS

The codes in the table below are also explained in the official European Union guidelines for the Standard Data Form. The relevant page is shown in the table below.

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	Designated Special Protection Area	53
B	SAC (includes candidates Special Areas of Conservation, Sites of Community Importance and designated SAC)	53
C	SAC area the same as SPA. Note in the UK Natura 2000 submission this is only used for Gibraltar	53

3.1 Habitat representativity

CODE	DESCRIPTION	PAGE NO
A	Excellent	57
B	Good	57
C	Significant	57
D	Non-significant presence	57

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippopha□ rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
3160	Natural dystrophic lakes and ponds	57
3170	Mediterranean temporary ponds	57
3180	Turloughs	57
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	57
4010	Northern Atlantic wet heaths with Erica tetralix	57
4020	Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix	57
4030	European dry heaths	57
4040	Dry Atlantic coastal heaths with Erica vagans	57
4060	Alpine and Boreal heaths	57
4080	Sub-Arctic Salix spp. scrub	57
5110	Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)	57
5130	Juniperus communis formations on heaths or calcareous grasslands	57
6130	Calaminarian grasslands of the Violetalia calaminariae	57
6150	Siliceous alpine and boreal grasslands	57
6170	Alpine and subalpine calcareous grasslands	57
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	57
6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	57
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	57
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	57
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	57
6520	Mountain hay meadows	57
7110	Active raised bogs	57
7120	Degraded raised bogs still capable of natural regeneration	57
7130	Blanket bogs (* if active bog)	57
7140	Transition mires and quaking bogs	57
7150	Depressions on peat substrates of the Rhynchosporion	57
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	57
7220	Petrifying springs with tufa formation (Cratoneurion)	57
7230	Alkaline fens	57
7240	Alpine pioneer formations of the Caricion bicoloris-atrofuscae	57
8110	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	57
8120	Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	57
8210	Calcareous rocky slopes with chasmophytic vegetation	57
8220	Siliceous rocky slopes with chasmophytic vegetation	57
8240	Limestone pavements	57
8310	Caves not open to the public	57
8330	Submerged or partially submerged sea caves	57
9120	Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)	57
9130	Asperulo-Fagetum beech forests	57
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	57
9180	Tilio-Acerion forests of slopes, screes and ravines	57
9190	Old acidophilous oak woods with Quercus robur on sandy plains	57
91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	57
91C0	Caledonian forest	57
91D0	Bog woodland	57
91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	57
91J0	Taxus baccata woods of the British Isles	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
A	15%-100%	58
B	2%-15%	58
C	< 2%	58

3.1 Conservation status habitat

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	59
B	Good conservation	59
C	Average or reduced conservation	59

3.1 Global grade habitat

CODE	DESCRIPTION	PAGE NO
A	Excellent value	59
B	Good value	59
C	Significant value	59

3.2 Population (abbreviated to 'Pop.' in data form)

CODE	DESCRIPTION	PAGE NO
A	15%-100%	62
B	2%-15%	62
C	< 2%	62
D	Non-significant population	62

3.2 Conservation status species (abbreviated to 'Con.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	63
B	Good conservation	63
C	Average or reduced conservation	63

3.2 Isolation (abbreviated to 'Iso.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Population (almost) Isolated	63
B	Population not-isolated, but on margins of area of distribution	63
C	Population not-isolated within extended distribution range	63

3.2 Global Grade (abbreviated to 'Glo.' Or 'G.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	63
B	Good value	63
C	Significant value	63

3.3 Assemblages types

CODE	DESCRIPTION	PAGE NO
WATR	Non breeding waterfowl assemblage	UK specific code
SBA	Breeding seabird assemblage	UK specific code
BBA	Breeding bird assemblage (applies only to sites classified pre 2000)	UK specific code

4.1 Habitat class code

CODE	DESCRIPTION	PAGE NO
N01	Marine areas, Sea inlets	65
N02	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	65
N03	Salt marshes, Salt pastures, Salt steppes	65
N04	Coastal sand dunes, Sand beaches, Machair	65
N05	Shingle, Sea cliffs, Islets	65
N06	Inland water bodies (Standing water, Running water)	65
N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
N09	Dry grassland, Steppes	65
N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic ressources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
H05	Soil pollution and solid waste (excluding discharges)	65
H06	Excess energy	65
H07	Other forms of pollution	65
I01	Invasive non-native species	65
I02	Problematic native species	65
I03	Introduced genetic material, GMO	65
J01	Fire and fire suppression	65
J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
K01	Abiotic (slow) natural processes	65
K02	Biocenotic evolution, succession	65
K03	Interspecific faunal relations	65
K04	Interspecific floral relations	65
K05	Reduced fecundity/ genetic depression	65
L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
M02	Changes in biotic conditions	65
U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
UK00	No Protection Status	67
UK01	National Nature Reserve	67
UK02	Marine Nature Reserve	67
UK04	Site of Special Scientific Interest (UK)	67

Appendix B: Data Sheet for Sanday SAC

NATURA 2000 – STANDARD DATA FORM

Special Areas of Conservation under the EC Habitats Directive (includes candidate SACs, Sites of Community Importance and designated SACs).

Each Natura 2000 site in the United Kingdom has its own Standard Data Form containing site-specific information. The data form for this site has been generated from the Natura 2000 Database submitted to the European Commission on the following date:

22/12/2015

The information provided here, follows the officially agreed site information format for Natura 2000 sites, as set out in the Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011 (2011/484/EU).

The Standard Data Forms are generated automatically for all of the UK's Natura 2000 sites using the European Environment Agency's Natura 2000 software. The structure and format of these forms is exactly as produced by the EEA's Natura 2000 software (except for the addition of this coversheet and the end notes). The content matches exactly the data submitted to the European Commission.

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

Further technical documentation may be found here
http://bd.eionet.europa.eu/activities/Natura_2000/reference_portal

As part of the December 2015 submission, several sections of the UK's previously published Standard Data Forms have been updated. For details of the approach taken by the UK in this submission please refer to the following document:
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

More general information on Special Areas of Conservation (SACs) in the United Kingdom is available from the SAC home page on the JNCC website. This webpage also provides links to Standard Data Forms for all SACs in the UK.

Date form generated by the Joint Nature Conservation Committee
25 January 2016.

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE **UK0030069**

SITENAME **Sanday**

TABLE OF CONTENTS

1. SITE IDENTIFICATION

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1.1 Type	1.2 Site code
B	UK0030069

1.3 Site name

Sanday

1.4 First Compilation date	1.5 Update date
1999-06	2015-12

1.6 Respondent:

Name/Organisation: Joint Nature Conservation Committee

Address: Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY

Email:

Date site proposed as SCI:	1999-06
Date site confirmed as SCI:	2004-12
Date site designated as SAC:	2005-03
National legal reference of SAC designation:	Regulations 8 and 11-15 of The Conservation (Natural Habitats, &c) Regulations 1994 (http://www.legislation.gov.uk/uksi/1994/2716/contents/made).

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
-2.5	59.28333333

2.2 Area [ha]:

10976.97

2.3 Marine area [%]

100.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKZZ	Extra-Regio
UKM6	Highlands and Islands

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

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3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Global
1110			5488.48		M	C	C	B	C
1140			1646.55		G	C	C	B	C
1160			10.98		G	D			
1170			4390.79		M	B	C	A	B

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.
M	1365	Phoca vitulina			p	1001	10000	i		M	B	A	C	B
M	1351	Phocoena phocoena			p				P	DD	D			

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N05	5.1
N14	0.2
N07	0.1
N01	88.0
N02	1.5
N03	0.1
N04	5.0
Total Habitat Cover	99.99999999999999

Other Site Characteristics

1 Terrestrial: Soil & Geology: sandstone 2 Terrestrial: Geomorphology and landscape: island,coastal 3 Marine: Geology: shingle,sandstone/mudstone,sedimentary,boulder,sand 4 Marine: Geomorphology: open coast (including bay),intertidal rock,intertidal sediments (including sandflat/mudflat),subtidal rock (including rocky reefs),pools,shingle bar,islands

4.2 Quality and importance

Sandbanks which are slightly covered by sea water all the time for which the area is considered to support a significant presence. Mudflats and sandflats not covered by seawater at low tide for which the area is

considered to support a significant presence. Reefs for which this is considered to be one of the best areas in the United Kingdom. Phoca vitulina for which this is considered to be one of the best areas in the United Kingdom.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
L	G02		B
L	L05		I
M	H06		O
H	F01		B
M	D03		B
M	E03		B
M	J02		B
L	G04		B
L	C01		B
M	E02		O
M	H03		B
M	I03		O
M	E01		O
L	H01		B
H	F02		I
L	D02		B
H	G05		I
M	K01		I
M	C02		O
M	K04		I
M	K03		I
H	I01		B
L	G01		I
H	K02		I

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,
T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Scottish Natural Heritage 'site link' below provides access to the Conservation Objectives for this site. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://gateway.snh.gov.uk/sitelink/documentview.jsp?p_pa_code=8372&p_Doc_Type_ID=29

http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK00	85.4	UK04	14.6		

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Scottish Natural Heritage
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

- [ ] Yes
- [ ] No, but in preparation
- [X] No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE NATURA 2000 STANDARD DATA FORMS

The codes in the table below are also explained in the official European Union guidelines for the Standard Data Form. The relevant page is shown in the table below.

1.1 Site type

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C	SAC area the same as SPA. Note in the UK Natura 2000 submission this is only used for Gibraltar	53

3.1 Habitat representativity

CODE	DESCRIPTION	PAGE NO
A	Excellent	57
B	Good	57
C	Significant	57
D	Non-significant presence	57

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
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1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
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1340	Inland salt meadows	57
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2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
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2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippopha□ rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
3160	Natural dystrophic lakes and ponds	57
3170	Mediterranean temporary ponds	57
3180	Turloughs	57
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	57
4010	Northern Atlantic wet heaths with Erica tetralix	57
4020	Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix	57
4030	European dry heaths	57
4040	Dry Atlantic coastal heaths with Erica vagans	57
4060	Alpine and Boreal heaths	57
4080	Sub-Arctic Salix spp. scrub	57
5110	Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)	57
5130	Juniperus communis formations on heaths or calcareous grasslands	57
6130	Calaminarian grasslands of the Violetalia calaminariae	57
6150	Siliceous alpine and boreal grasslands	57
6170	Alpine and subalpine calcareous grasslands	57
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	57
6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	57
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	57
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	57
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	57
6520	Mountain hay meadows	57
7110	Active raised bogs	57
7120	Degraded raised bogs still capable of natural regeneration	57
7130	Blanket bogs (* if active bog)	57
7140	Transition mires and quaking bogs	57
7150	Depressions on peat substrates of the Rhynchosporion	57
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	57
7220	Petrifying springs with tufa formation (Cratoneurion)	57
7230	Alkaline fens	57
7240	Alpine pioneer formations of the Caricion bicoloris-atrofuscae	57
8110	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	57
8120	Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	57
8210	Calcareous rocky slopes with chasmophytic vegetation	57
8220	Siliceous rocky slopes with chasmophytic vegetation	57
8240	Limestone pavements	57
8310	Caves not open to the public	57
8330	Submerged or partially submerged sea caves	57
9120	Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)	57
9130	Asperulo-Fagetum beech forests	57
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	57
9180	Tilio-Acerion forests of slopes, screes and ravines	57
9190	Old acidophilous oak woods with Quercus robur on sandy plains	57
91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	57
91C0	Caledonian forest	57
91D0	Bog woodland	57
91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	57
91J0	Taxus baccata woods of the British Isles	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
A	15%-100%	58
B	2%-15%	58
C	< 2%	58

3.1 Conservation status habitat

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	59
B	Good conservation	59
C	Average or reduced conservation	59

3.1 Global grade habitat

CODE	DESCRIPTION	PAGE NO
A	Excellent value	59
B	Good value	59
C	Significant value	59

3.2 Population (abbreviated to 'Pop.' in data form)

CODE	DESCRIPTION	PAGE NO
A	15%-100%	62
B	2%-15%	62
C	< 2%	62
D	Non-significant population	62

3.2 Conservation status species (abbreviated to 'Con.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	63
B	Good conservation	63
C	Average or reduced conservation	63

3.2 Isolation (abbreviated to 'Iso.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Population (almost) Isolated	63
B	Population not-isolated, but on margins of area of distribution	63
C	Population not-isolated within extended distribution range	63

3.2 Global Grade (abbreviated to 'Glo.' Or 'G.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	63
B	Good value	63
C	Significant value	63

3.3 Assemblages types

CODE	DESCRIPTION	PAGE NO
WATR	Non breeding waterfowl assemblage	UK specific code
SBA	Breeding seabird assemblage	UK specific code
BBA	Breeding bird assemblage (applies only to sites classified pre 2000)	UK specific code

4.1 Habitat class code

CODE	DESCRIPTION	PAGE NO
N01	Marine areas, Sea inlets	65
N02	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	65
N03	Salt marshes, Salt pastures, Salt steppes	65
N04	Coastal sand dunes, Sand beaches, Machair	65
N05	Shingle, Sea cliffs, Islets	65
N06	Inland water bodies (Standing water, Running water)	65
N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
N09	Dry grassland, Steppes	65
N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic ressources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
H05	Soil pollution and solid waste (excluding discharges)	65
H06	Excess energy	65
H07	Other forms of pollution	65
I01	Invasive non-native species	65
I02	Problematic native species	65
I03	Introduced genetic material, GMO	65
J01	Fire and fire suppression	65
J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
K01	Abiotic (slow) natural processes	65
K02	Biocenotic evolution, succession	65
K03	Interspecific faunal relations	65
K04	Interspecific floral relations	65
K05	Reduced fecundity/ genetic depression	65
L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
M02	Changes in biotic conditions	65
U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
UK00	No Protection Status	67
UK01	National Nature Reserve	67
UK02	Marine Nature Reserve	67
UK04	Site of Special Scientific Interest (UK)	67

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