

Appendix 8.3 Nisthill Wind Farm Habitat Regulations Appraisal

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Appendix 8.3 Habitat Regulations Appraisal

1. Introduction

1.1 Overview

ITP Energised was appointed by the Applicant to complete a Habitat Regulations Appraisal (HRA) for a proposed wind farm development at Nisthill, Orkney. This report provides information to assist the competent authority, in their consideration of whether the proposed works will have likely significant effects on European sites, and in ascertaining any adverse effects on their integrity, as required under Regulation 63 of the Conservation of Habitats and Species Regulations 2017.

1.2 Site description

The area proposed for development (referred to as the 'site' hereafter) is located on the Orkney Islands, situated to the north of the Mainland at central grid reference HY 30523 27053. The site is approximately 120 ha in size and is generally surrounded by lochs, moorland, and arable farmland, with several smallholdings in the local area. Loch of Swannay lies immediately north-east and Loch of Hundland lies approximately 150 m to the south-west. The site itself is comprised of number of habitat types including improved, acidic and marshy grasslands, wet dwarf shrub heath and blanket bog.

1.3 Proposed development

The Proposed Development will consist of four stand-alone, three bladed horizontal axis turbines. Full details are provided in Chapter 3. The proposed locations are noted in Table 1.1.

Table 1.1 - Proposed Indicative Turbine Coordinates (BNG)

Turbine Number	X Coordinate	Y Coordinate
1	329811	1027366
2	330312	1026900
3	330757	1027409
4	331058	1026885

Four SG155 turbines will be installed, with a maximum 180 m tip height, each with a generating capacity of up to approximately 6.6 MW, resulting in a total installed capacity of up to 26.4MW.

In addition to the turbines, associated works will be required for the following:

- turbine foundations;
- crane hardstanding;
- external transformer;
- on-site access tracks between turbines and from the point of access to the turbines;
- on-site substation;
- on-site borrow pit;

- on-site electrical cabling between the turbines and the substation and energy storage system; and,
- temporary construction compound.

Consent will be sought for an operational life of 40 years from the date of commissioning the turbines. Before the end of this period, a decision would be made as to whether the Proposed Development should be decommissioned and removed, refurbished or re-powered.

1.4 Report purpose

This report presents the Proposed Development HRA and will assess the potential for ‘likely significant effects’ (LSE) to European sites within the Zone of Influence of the Proposed Development. Where there is credible evidence that there is no risk that the Proposed Development activities are ‘likely to have a significant effect’ on specific features of a European or Ramsar site by undermining its conservation objective(s), these features have been screened out and will not require further assessment. Where such determination has been concluded, the justification is noted within the relevant receptor chapters of the report.

If a credible impact pathway is identified, or there is reasonable doubt whether the Proposed Development will or will not result in LSE, in view of the conservation objectives, then the respective site and feature has been screened into the HRA to be taken forward to the next stage, Appropriate Assessment (AA).

2. Habitat Regulations Assessment Process

2.1 Legislation

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (“The Habitats Directive”), provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species through the establishment and conservation of an EU-wide network of sites. This network is known as Natura 2000 and is a European ecological network of special areas of importance for nature conservation, 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 a network of Natura 2000 Sites. Natura 2000 Sites relating to birds as qualifying features comprise Special Protection Areas (SPAs), while other non-avian species and habitats are designated through Special Areas of Conservation (SACs). In addition, as clarified by paragraphs 207 to 211 of the Scottish Planning Policy 2014, wetlands of international importance designated under the Ramsar Convention (Ramsar site wetlands) are also treated as designated Natura 2000 Sites and are therefore also considered in HRAs.

The procedures that must be followed when considering developments affecting Natura 2000 Sites are set out in Article 6 of the Habitats Directive. In Scotland, this process is implemented through the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) (“The Habitats Regulations”).

Habitats Directive Article 6(3) set 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 (Annex 1.1). Article 6(3) establishes the requirement for AA:

“Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”

Both EU and national guidance exists in relation to Member States fulfilling their requirements under the EU Habitats Directive, with particular reference to Article 6(3) and 6(4) of that Directive. The methodology followed in this report to inform the Article 6 assessments has had regard to the following guidance and legislation:

- Guidance:
 - Scottish Natural Heritage (now NatureScot) (2018). Natura sites and the Habitats Regulations: How to consider proposals affecting SACs and SPAs in Scotland. The essential quick guide.
- Legislation:
 - Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (also known as the ‘Habitats Directive’).
 - Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds, codified version (also known as the ‘Birds Directive’).

- The European Communities (Birds and Natural Habitats) Regulations 2011 to 2015.

2.2 Assessment methodology

It is incumbent on any public body (referred to as a competent authority within the Habitats Regulations) to carry out a Habitats Regulations Assessment where they are proposing to carry out a project, implement a plan or authorise another party to carry out a plan or project. Competent authorities are required to record the process undertaken, ensuring that there will be no adverse effects on the integrity of any Natura 2000 site (referred to as 'European sites', hereafter) as a result of a plan or project whether alone or in combination with other plans or projects.

2.2.1 Defining the zone of influence

The Habitats Regulations are applicable to the proposal to create a windfarm on site, as European Sites (SPAs and SACs) are present adjacent to the site and within its wider zone of influence. The latter has been identified as 10 km from the site boundary, based on professional judgement and the nature of the project being of a relatively small scale, with only low-level activities proposed on site following the construction phase. In addition, any SPAs with goose or chough as qualifying features within 20 km and 40 km of the site, respectively, would have been considered for this assessment, as these species are known to fly up to these distances. However, none were identified within these distances, and so only sites within 10 km of the site have been considered in this assessment (Figure 8.2 of the EIA Report).

2.2.2 Assessment Stages

The European Commission has developed guidance in relation to Articles 6(3) and 6(4) of the Habitats Directive. The assessment methodology below has taken this guidance into account to meet the requirements of the Habitats Directive.

2.2.2.1 Stage 1 - Screening

This stage identifies the likely effects of the Proposed Development on the qualifying features (species and habitats) of any European Site, either alone or in combination with other plans or projects. Specifically, this stage considers whether these effects are likely to be significant with regard to the conservation objectives of the site. The Proposed Development will require 'Appropriate Assessment' (Stage 2) if it is considered likely to have a significant effect on a European site, i.e. where any aspect of the Proposed Development risks an effect on any European site which undermines the site's conservation objectives.

2.2.2.2 Stage 2 – Appropriate Assessment

If it is considered that a plan or project is likely to have a significant effect on a European site at Stage 1, the requirements of Stage 2 are triggered. This stage considers the effects of the Proposed Development on the integrity of a European site, alone or in combination with other plans or projects. The assessment should consider the implications for the European site in view of the site's conservation objectives, in the absence of mitigation, including embedded mitigation. If adverse effects are identified or may arise, this assessment should consider measures to mitigate the identified effects.

2.2.2.3 Stage 3 - Assessment of alternative solutions

Where adverse impacts on the European Site cannot be ruled out through mitigation at Stage 2, this next stage examines alternative ways of achieving the objectives of the plan or project that avoid adverse impacts on the integrity of the European Sites.

2.2.2.4 Stage 4 - Assessment of compensatory measures

Where no alternative solution exists and adverse impacts remain, an assessment of compensatory measures must be undertaken, but only where the plan or project is considered necessary for imperative reasons of overriding public interest (IROPI). Within these various stages the Habitats

Directive promotes the adoption of a hierarchy of avoidance followed by mitigation and ultimately compensation.

2.3 Data to inform the assessment

The following sections describe the field surveys undertaken for the Proposed Development, undertaken along with a desk study compiling data from up to a 10 km radius. All surveys were undertaken by suitably qualified and experienced ornithologists/ecologists, and all details are included within the Nisthill EIAR respective chapters.

2.3.1 Ecology surveys

An Extended Phase 1 Habitat survey was conducted in September 2021 of the site, extending up to 200m around the boundary. This survey included an assessment of the suitability of the site and surrounding area for bats and otters as well as other protected or notable species.

An extended NVC survey of the site and up to 250m beyond the boundary, was also conducted in April 2022, to identify potential groundwater-dependent terrestrial ecosystems, which could be vulnerable to the Proposed Development.

The full details of survey methodologies and results are contained within Chapter 7.

2.3.2 Ornithology surveys

Ornithological field surveys for the Proposed Development were carried out between September 2020 and May 2022. Surveys were carried out at a variety of times and in different weather conditions to ensure the collected data were fully representative of a range of behaviour patterns. The full details of the survey methods and results are included within Chapter 8.

2.3.2.1 Vantage Point surveys

As detailed within the EIAR (Chapter 8), flight activity surveys were undertaken over one breeding season and two non-breeding seasons, following NatureScot guidance (SNH, 2017). Two Vantage Points (VPs) were initially selected following review of aerial imagery and Ordnance Survey maps, and the locations confirmed during a ground-truthing exercise in September 2020 when the locations were micro sited to the optimal locations in September 2020.

VP surveys were completed over 18 months, from September 2020 to March 2022. A total of 36 hours was undertaken at each VP during the breeding season and a combined total of 72 hours per VP during the two non-breeding seasons, which equates to a total of 108 hours at each VP over the 18 months. VP watches were conducted for periods of no longer than 3 hours in a single watch. A minimum 30 minute break was observed between watches to allow the surveyor an adequate rest time between VP watches.

2.3.2.2 Winter Walkover Survey

Winter walkover surveys were conducted of the pre-scoping site boundary and a 500 m survey buffer within accessible areas of land ownership or public rights of way (PROW). Wintering bird walkover surveys were completed between October 2020 and March 2021 and October 2021 and March 2022 inclusive and followed NatureScot guidance (SNH, 2017).

2.3.2.3 Breeding Bird Survey

Breeding bird surveys were conducted on site and within a 500 m survey buffer from the boundary within accessible areas of land ownership or PROW. A walkover technique based on the Brown and Shepherd method (1993) was employed and involved approaching within 100 m of all parts of the Study Area to record the presence of waders. NatureScot guidance (SNH, 2017) recommends that four survey visits should be completed over the breeding season, based on recommendations set out in Calladine *et al.* (2009). The 2021 survey included a total of four survey visits, conducted during the period April to July 2021, inclusive, with a minimum two-week gap between survey visits. At the time of writing in June 2022, further breeding bird surveys are underway, however these are currently being conducted by a third party and data is currently unavailable so does not form part of this assessment.

Dedicated red-throated diver (*Gavia stellata*) surveys were not undertaken due to a lack breeding records for this species within the site and immediate surrounds. However, any potential commuting flights to/from breeding lochans in the wider area are considered to have been registered within the VP surveys.

2.3.2.4 Breeding Raptor Survey

Breeding raptor surveys were conducted on site and within a 2 km distance of the site boundary. Surveys were conducted for nesting raptors and owls from April to August 2021, inclusive. The survey methods followed Hardey *et al.* (2013) and involved four survey visits (minimum of two weeks apart) walking transect routes focusing on suitable habitat and any prominent features such as rock outcrops or fence lines within the site and wider 2 km survey area. At the time of writing in June 2022, breeding raptor surveys are underway, however these are currently being conducted by a third party and data is currently unavailable so does not form part of this assessment.

3. European Site Identification

All European sites within 10 km of the site were identified for further consideration, based on the nature of the project and professional judgment. There are no further relevant European sites beyond this distance; the closest being Loch of Stromness Heaths and Coast SAC and Loch of Stenness SAC, both located just over 12 km south-west of the site on Orkney Mainland. These sites have not been considered in this assessment as they are designated for their qualifying habitats only and so the zone of influence on these features is likely to be less than 10 km. There are further SACs and SPAs within the wider area but no closer than 17 km from the site and outside the likely zone of influence of the Proposed Development, particularly as none of the SPAs are designated for goose or chough as qualifying features. Therefore, these sites have not been considered in this assessment.

A total of five European Sites are present within the 10 km search area, including four SPAs and one SAC (shown in **Figure 8.2 of EIA Report**). They include the following:

- Orkney Mainland Moors SPA;
- Rousay SPA;
- North Orkney SPA (Marine);
- Loch of Isbister SAC; and
- Marwick Head SPA.

The details of these sites are summarised in Tables 3.1-3.5.

Table 3.1 - Site characteristics of Orkney Mainland Moors SPA

Orkney Mainland Moors SPA	
Distance & direction from site	0 km south
Size	5342.19 ha (total over four areas)
Grid reference	HY 358210, HY310237, HY 330080, HY 390095
Component SSSI	The boundaries of the SPA are coincident with those of West Mainland Moorlands SSSI (including the extension at Sleet Moss), Glims Moss & Durkadale SSSI, Orphir & Stenness Hills SSSI, and Keelylang & Swartabeck Burn SSSI.
General description	Orkney Mainland Moors SPA comprises four areas of moorland on Mainland, Orkney. The predominant habitats include extensive areas of blanket bog, acid grassland, wet and dry heath, acidic raised-mire and calcareous valley mire.
Qualifying features (Article 4.1 and 4.2 Directive 79/409/EEC and Ramsar Criteria)	Orkney Mainland Moors SPA qualifies under Article 4.1 by regularly supporting populations of European importance of three Annex 1 species; <ul style="list-style-type: none"> • Hen harrier (<i>Circus cyaneus</i>) (average of 28 breeding females, 5.9% of GB; average of 13 wintering individuals between 1994 and 1998, 2% of GB population); • Red-throated diver (<i>Gavia stellata</i>) (average of 18 breeding pairs, 2% of GB population); and • Short-eared owl (<i>Asio flammeus</i>) (average of 19 breeding pairs between 1993 and 1995, 2% of GB population).

Orkney Mainland Moors SPA	
Published Conservation Objectives	<p>To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and</p> <p>To ensure for the qualifying species that the following are maintained in the long term:</p> <ul style="list-style-type: none"> • 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; and • No significant disturbance of the species.
Negative pressures	No negative pressures listed within the NatureScot SPA citation (NatureScot, n.d a).

Table 3.2 - Site characteristics of Rousay SPA

Rousay SPA	
Distance & direction from site	4.2 km north-east
Size	5,483.37 ha
Grid reference	HY 400310
Component SSSI	The boundary of the SPA overlaps with the boundary of Rousay SSSI and Eynhallow SSSI.
General description	Rousay is an island off the north-east coast of Mainland, Orkney. The SPA consists of sea cliffs and areas of maritime heath and grassland in the northwest and northeast of the island.
Qualifying features (Article 4.1 and 4.2 Directive 79/409/EEC and Ramsar Criteria)	<p>Rousay qualifies under Article 4.1 by regularly supporting a population of European importance of the following Annex 1 species:</p> <ul style="list-style-type: none"> • Arctic tern (<i>Sterna paradisaea</i>) (average of 790 pairs in the five-year period between 1991 and 1995; 2% of the GB population). <p>Rousay SPA also qualifies under Article 4.2 by regularly supporting in excess of 20,000 individual seabirds. The site regularly supports about 30,000 seabirds including nationally important populations of the following species:</p> <ul style="list-style-type: none"> • Arctic tern (790 pairs, 2% of the GB population); • Arctic skua (<i>Stercorarius parasiticus</i>) (130 pairs; 4% of the GB population); • Black-legged kittiwake (<i>Rissa tridactyla</i>) (4,900 pairs; 1% of the GB population);

Rousay SPA	
	<ul style="list-style-type: none"> • Common guillemot (<i>Uria aalge</i>) (10,600 individuals, 1% of the GB population); and • Northern fulmar (<i>Fulmarus glacialis</i>) (1,240 pairs, 0.2% of GB population).
Published Conservation Objectives	<p>To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and</p> <p>To ensure for the qualifying species that the following are maintained in the long term:</p> <ul style="list-style-type: none"> • 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; and • No significant disturbance of the species.
Negative pressures	No negative pressures listed within the NatureScot SPA citation (NatureScot, n.d b).

Table 3.3 - Site characteristics of North Orkney SPA (Marine)

North Orkney SPA (Marine)	
Distance & direction from site	4.3 km south-east
Size	21173.17 ha
Grid reference	HY 435238
Component SSSI	None
General description	Classified in February 2022, North Orkney is a Marine SPA located in the seas north of Orkney Mainland. The site encompasses Deer Sound, Shapinsay Sound and Wide Firth and includes the seas around the islands of Rousay, Egilsay and Wyre. The sounds around North Orkney SPA provide numerous sheltered bays and inlets for birds to moult, roost, rest and feed.
Qualifying features (Article 4.1 and 4.2 Directive 79/409/EEC and Ramsar Criteria)	<p>The area included within the SPA supports a population of European importance of the following Annex 1 species:</p> <ul style="list-style-type: none"> • Great northern diver (<i>Gavia immer</i>); • Slavonian grebe (<i>Podiceps auritus</i>); and • Red-throated diver (<i>Gavia stellata</i>).
Draft Conservation Objectives	To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, subject to natural change, thus ensuring that the integrity of the site is maintained in the long-term and it continues to

North Orkney SPA (Marine)	
	<p>make an appropriate contribution to achieving the aims of the Birds Directive for each of the qualifying species. This contribution will be achieved through delivering the following objectives for each of the site's qualifying features:</p> <p>a) Avoid significant mortality, injury and disturbance of the qualifying features, so that the distribution of the species and ability to use the site are maintained in the long-term; and</p> <p>b) To maintain the habitats and food resources of the qualifying features in favourable condition.</p>
Negative pressures	None listed to date (NatureScot, n.d c).

Table 3.4 - Site characteristics of Loch of Isbister SAC

Loch of Isbister SAC	
Distance & direction from site	4.8 km south-west
Size	105.41 ha
Grid reference	HY 255237
Component SSSI	The boundary of the SAC overlaps with the boundary of Loch of Isbister and the Loons SSSI.
General description	The SAC comprises inland water bodies (36%), bogs, marshes, water fringed vegetation and fens (59%), and improved grassland (5%).
Qualifying features (Article 4.1 and 4.2 Directive 79/409/EEC and Ramsar Criteria)	<p>Annex I habitats that are a primary reason for selection of this site:</p> <ul style="list-style-type: none"> Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation. <p>Loch of Isbister is an excellent example of a shallow moderate-sized naturally eutrophic loch. Formerly the Loch of Isbister was more extensive, but encroachment by peripheral vegetation and peat has resulted in the development of a high-quality basin-mire complex, with excellent examples of open-water transition plant communities. The loch supports a rich plant flora typical of the Magnopotamion type, with plants able to grow in the centre of the loch due to its shallow nature, including abundant stoneworts (<i>Chara spp.</i>) and pondweeds (<i>Potamogeton spp.</i>). The loch is rich in northern species and is the most northerly site for natural eutrophic lakes in the UK.</p> <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:</p> <ul style="list-style-type: none"> Transition mires and quaking bogs. <p>Annex II species present as a qualifying feature, but not a primary reason for site selection:</p> <ul style="list-style-type: none"> Otter (<i>Lutra lutra</i>).

Loch of Isbister SAC	
Published Conservation Objectives	<p>To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and</p> <p>To ensure for the qualifying species that the following are maintained in the long term:</p> <ul style="list-style-type: none"> • 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; and • No significant disturbance of the species.
Negative pressures	<p>Pressures listed for freshwater habitats and mammals (except marine) include;</p> <ul style="list-style-type: none"> • Trampling; and • Water management (NatureScot, n.d d).

Table 3.5 - Marwick Head SPA

Marwick Head SPA	
Distance & direction from site	5.2 km west
Size	475.58 ha
Grid reference	HY 226257
Component SSSI	The boundary of the SPA overlaps the boundary of Marwick Head SSSI.
General description	The Marwick Head SPA is a 2 km stretch of sea cliffs, and adjacent coastal waters, along the west coast of Orkney Mainland. The cliffs support large colonies of breeding seabirds.
Qualifying features (Article 4.1 and 4.2 Directive 79/409/EEC and Ramsar Criteria)	<p>Marwick Head qualifies under Article 4.2 by regularly supporting populations of European importance of the following migratory species:</p> <ul style="list-style-type: none"> • Common guillemot (<i>Uria aalge</i>) (37,700 individuals 1.1% of the western European biogeographic population). <p>Marwick Head SPA also qualifies under Article 4.2 by regularly supporting in excess of 20,000 individual seabirds. It regularly supports 75,000 seabirds including nationally important populations of the following species:</p> <ul style="list-style-type: none"> • Black-legged kittiwake (<i>Rissa tridactyla</i>) (7,700 pairs, 2% of the GB population); and • Common guillemot (37,700 individuals, 4% of the GB population).

Marwick Head SPA	
Published Conservation Objectives	<p>To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and</p> <p>To ensure for the qualifying species that the following are maintained in the long term:</p> <ul style="list-style-type: none"> • 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; and • No significant disturbance of the species.
Negative pressures	No negative pressures listed within the NatureScot SPA citation (NatureScot, n.d e).

4. Stage 1 - Screening for likely significant effects

In the context of the above information, the below tables present a review of the potential impact pathways between the site and the European sites subject to screening.

Pathways are considered based on the development as proposed, including any aspects which may, in addition to their primary purpose, act to mitigate potential effects on European sites (such as standard pollution prevention controls). However, in accordance with the 'People Over Wind' ruling of the Court of Justice for the European Union Case 323/17, screening for likely significant effects takes place in the absence of measures specifically adopted to avoid or reduce effects on European sites.

4.1 Orkney Mainland Moors SPA

4.1.1 Screening for likely significant effects

The screening assessment for this site is provided in Table 4.1, below.

Table 4.1 - Orkney Mainland Moors SPA

Screening for likely significant effects:	
Land take within European site	None – the Proposed Development lies outside SPA boundary.
Fragmentation of European site habitat	None – the Proposed Development lies outside SPA boundary.
Increased mortality of key species	During the operational phase, the presence of four wind turbines presents a collision risk and therefore potential for increased mortality of key species, if flight lines of these species are present across the site at heights of 180 m and below.
Disturbance and displacement to key species/deterioration of habitats	<p>During the construction phase, noise and vibration levels will increase. This has potential to result in disturbance and displacement of key species nesting, foraging or roosting within the SPA and surrounding areas, due to the proximity of the Proposed Development footprint, particularly the southern turbine which is located within 70 m of the SPA. As the construction phase is likely to last approximately 12 months, there is potential for disturbance of all three key species over the breeding season (short-eared owl can arrive at their breeding grounds from March, with Hen harrier not departing until September/October). There is also potential for disturbance/displacement of wintering hen harrier.</p> <p>The operational phase of the Proposed Development is considered unlikely to result in significant disturbance of key species due to low noise levels of the turbines and limited long-term activity on site.</p>
Damage or deterioration of supporting habitats, outside European site	The habitats on site include blanket Sphagnum bog, wet heath/acid grassland, marshy grassland, improved grassland and hedgerows. The habitats including the bog and wet heath/marshy grassland, covering approximately half of the site, are analogous with habitats of the adjacent SPA. Therefore, there is potential for key species of the SPA to use the site as supporting habitat and therefore potential for likely significant effects due to habitat loss on site.
Atmospheric pollution/air quality	None - the construction and operational phases of the Proposed Development will not likely result in significant increases in atmospheric pollution to the SPA due to the relatively small scale of the project, in the context of the larger off-

Screening for likely significant effects:	
	site SPA, along with the nature of the Proposed Development which will result in no long-term emissions and only short-term generation of construction dust which is likely to be localised.
Changes to soil chemistry	None - The footprint of the four turbines and associated works is considered to be small in the context of the much larger site area, and so impacts are likely to be localised to the area around the Proposed Development only, and unlikely to significantly alter the soil chemistry of the SPA.
Hydrological regime change	None - The footprint of the four turbines is considered to be small in the context of the much larger site area, and so impacts are likely to be localised, and unlikely to significantly alter the hydrological regime of the SPA. There are also no rivers or streams connecting directly from the site to the SPA.
Pollution of surface/ground water	None - The footprint of the four turbines is considered to be small in the context of the much larger site area, and so impacts are likely to be localised, and unlikely to result in pollution of surface/ground water within the SPA.

4.1.2 Outcome of screening (Proposed Development alone)

It is considered that there is potential for likely significant effects to Orkney Mainland Moors SPA as a result of potential increased mortality of key species, potential disturbance to breeding and foraging SPA birds and damage/loss of supporting habitat. These impacts have the potential to affect the conservation objectives of the SPA and so this European site is therefore **screened in** to be taken forward for Appropriate Assessment.

4.2 Rousay SPA

4.2.1 Screening for likely significant effects

The screening assessment for this site is provided in Table 4.2, below.

Table 4.2 - Rousay SPA

Screening for likely significant effects:	
Land take within European site	None – the Proposed Development lies outside SPA boundary.
Fragmentation of European site habitat	None – the Proposed Development lies outside SPA boundary.
Increased mortality of key species	<p>None - Three of the key species of the SPA have been recorded on site in very low numbers and are considered highly unlikely to use the site for breeding. Arctic tern was recorded infrequently during the breeding season in 2021 and no breeding activity was recorded on site. Arctic skua were recorded on three occasions from flight activity surveys, all in June 2021; however, no evidence of breeding activity was recorded for this species. Due to the low flight activity, no collision risk was predicted for this species either. Fulmar were recorded infrequently during the breeding season in 2021 and no breeding activity was recorded. All other SPA species are considered likely absent from the site.</p> <p>It is therefore unlikely that the Proposed Development would result in significant effects as a result of increased mortality of these species.</p>

Screening for likely significant effects:	
Disturbance to key species/deterioration of habitats	None - as above - due to the low numbers of key species recorded on site and distance to the SPA, it is considered unlikely that the Proposed Development would result in significant effects as a result of disturbance to key species.
Damage or deterioration of supporting habitats, outside European site	None - as above, it is considered unlikely that the SPA species are using the site as supporting habitat.
Atmospheric pollution/air quality	None – the Proposed Development is unlikely to result in significant increases in atmospheric pollution to the SPA due to the relatively small scale of the Proposed Development and distance to the off-site SPA, along with the nature of the Proposed Development which will result in no long-term emissions and only short-term generation of construction dust which is likely to be localised.
Changes to soil chemistry	None – The site is located on a different island from the SPA.
Hydrological regime change	None – The site is located on a different island from the SPA.
Pollution of surface/ground water	None – The site is located on a different island from the SPA.

4.2.2 Outcome of screening (Proposed Development alone)

No likely significant effects on Rousay SPA have been identified through the screening stage. Rousay SPA is therefore **screened out** of the assessment and will not be considered further in this report.

4.3 North Orkney SPA (marine)

4.3.1 Screening for likely significant effects

The screening assessment for this site is provided in Table 4.3, below.

Table 4.3 - North Orkney SPA (marine)

Screening for likely significant effects:	
Land take within European site	None – the Proposed Development lies outside SPA boundary.
Fragmentation of European site habitat	None – the Proposed Development lies outside SPA boundary.
Increased mortality of key species	None - Of the SPA key species, red-throated diver was recorded on site during the breeding season; however this species generally uses the closest area of open water to their breeding sites to forage. With the SPA being over 4.3 km away it is unlikely birds recorded on site are from the North Orkney SPA

Screening for likely significant effects:	
	<p>population. Other key species of the SPA are considered unlikely to be present on site and/or unlikely to use the site for breeding.</p> <p>It is therefore unlikely that the Proposed Development would result in significant effects as a result of increased mortality of key species.</p>
Disturbance to key species/deterioration of habitats	None - as above, it is unlikely that the birds from the North Orkney SPA population are using the site.
Damage or deterioration of supporting habitats, outside European site	None - as above, it is unlikely that the birds from the North Orkney SPA population are using the site as supporting habitat.
Atmospheric pollution/air quality	None - the Proposed Development is unlikely to result in significant increases in atmospheric pollution to the SPA due to the relatively small scale of the Proposed Development and distance to the off-site SPA, along with the nature of the Proposed Development which will result in no long-term emissions and only short-term generation of construction dust which is likely to be localised.
Changes to soil chemistry	None - the Proposed Development is unlikely to result in significant changes to the coastal areas of the SPA due to the relatively small scale of the Proposed Development and distance to the off-site SPA.
Hydrological regime change	None - the Proposed Development is unlikely to result in significant changes to the hydrology of the SPA due to the relatively small scale of the Proposed Development and distance to the off-site SPA.
Pollution of surface/ground water	None - the Proposed Development is unlikely to result in significant pollution of surface/ground water of the SPA due to the relatively small scale of the Proposed Development and distance to the off-site SPA.

4.3.2 Outcome of screening (Proposed Development alone)

No likely significant effects on North Orkney SPA have been identified through the screening stage. This European site is therefore screened out of the assessment and will not be considered further in this report.

4.4 Loch of Isbister SAC

4.4.1 Screening for likely significant effects

The screening assessment for this site is provided in Table 4.4, below.

Table 4.4 - Loch of Isbister SAC

Screening for likely significant effects:	
Land take within European site	None – the Proposed Development lies outside SAC boundary.

Screening for likely significant effects:	
Fragmentation of European site habitat	None – the Proposed Development lies outside SAC boundary.
Increased mortality of key species	There is potential for the SAC population of otters to use the site for commuting and there is therefore a potential for likely significant effects as a result of increased mortality of the population during the construction and operational phases of the Proposed Development.
Disturbance to key species/deterioration of habitats	<p>Otters have been confirmed to be present within the vicinity of the site and these individuals may include members of the SAC population; there is therefore potential for disturbance to SAC otters as a result of the Proposed Development.</p> <p>The qualifying habitats of the SAC are located over 4.8 km from the site and are therefore highly unlikely to be impacted by the Proposed Development.</p>
Damage or deterioration of supporting habitats, outside European site	<p>The SAC otter population has the potential to use the site habitats as supporting habitat and so there is potential for likely significant effects as a result of the Proposed Development.</p> <p>The qualifying habitats of the SAC are absent from the site; therefore no supporting habitat is likely to be impacted and so no likely significant effects are anticipated.</p>
Atmospheric pollution/air quality	None – the Proposed Development is unlikely to result in significant increases in atmospheric pollution to the SAC due to the relatively small scale of the project and distance to the off-site SAC, along with the nature of the Proposed Development which will result in no long-term emissions and only short-term generation of construction dust which is likely to be localised.
Changes to soil chemistry	None – the Proposed Development is unlikely to result in significant changes to the soil chemistry of the SAC due to the relatively small scale of the project and distance to the off-site SAC.
Hydrological regime change	None – the Proposed Development is unlikely to result in significant changes to the hydrology of the SAC due to the relatively small scale of the project and distance to the off-site SAC, with no direct water courses linking the site to the SAC.
Pollution of surface/ground water	None – the development is unlikely to result in significant pollution of surface/ground water of the SAC due to the relatively small scale of the project and distance to the off-site SAC, with no direct water courses linking the site to the SAC.

4.4.2 Outcome of screening (Proposed Development alone)

It is considered that there is potential for likely significant effects to Loch of Isbister SAC as a result of potential increased mortality, disturbance and loss of supporting habitat of otter, which may affect the conservation objectives of the SAC. This European Site is therefore **screened in** to be taken forward for Appropriate Assessment.

4.5 Marwick Head SPA

4.5.1 Screening for likely significant effects

The screening assessment for this site is provided in Table 4.5, below.

Table 4.5 - Marwick Head SPA

Screening for likely significant effects:	
Land take within European site	None – the Proposed Development lies outside SPA boundary.
Fragmentation of European site habitat	None – the Proposed Development lies outside SPA boundary.
Increased mortality of key species	None – Neither of the key species of the SPA, common guillemot and black-legged kittiwake, were recorded on site during surveys carried out in 2021 and no previous records have been returned. It is unlikely that birds of the SPA population are present on site or use the site for breeding. It is therefore considered unlikely that the Proposed Development would result in increased mortality of these SPA species.
Disturbance to key species/deterioration of habitats	None - as above, key species are likely absent and disturbance or deterioration of habitats is therefore not likely to affect the SPA populations.
Damage or deterioration of supporting habitats, outside European site	None - as above, key species are likely absent and so the site is unlikely to contain supporting habitat.
Atmospheric pollution/air quality	None - the Proposed Development is unlikely to result in significant increases in atmospheric pollution to the SPA due to the relatively small scale of the Proposed Development and distance to the off-site SPA, along with the nature of the Proposed Development which will result in no long-term emissions and only short-term generation of construction dust which is likely to be localised.
Changes to soil chemistry	None - the Proposed Development is unlikely to result in significant changes to the soil chemistry of the SPA due to the relatively small scale of the Proposed Development and distance to the off-site SPA.
Hydrological regime change	None - the Proposed Development is unlikely to result in significant changes to the hydrology of the SPA due to the relatively small scale of the Proposed Development and distance to the off-site SPA, with no direct watercourses linking the site to this site.
Pollution of surface/ground water	None - the development is unlikely to result in significant pollution of surface/ground water of the SPA due to the relatively small scale of the project and distance to the off-site SPA, with no direct water courses linking the site to the SPA.

4.5.2 Outcome of screening (Proposed Development alone)

No likely significant effects on Marwick Head SPA have been identified through the screening stage. This European site is therefore screened out of the assessment and will not be considered further in this report.

4.6 Potential for in-combination effects

The Orkney Local Development Plan 2017-2022 states that ‘Areas with Potential for Wind Farm Development’ have been identified (Orkney Islands Council, 2017). Orkney Islands Council proposes three potential areas for community wind farms in Quanterness, Hoy and Faray with applications submitted between 2020-2021. These proposed schemes are all located over 20 km south of the site, two of which are located on different islands. Allocated development sites for housing are also proposed in ‘existing residential areas’, likely centred around more urban/semi-urban areas, of which none are located within proximity to the site. It is therefore considered unlikely that these proposed plans and projects would act in-combination with the Proposed Development on site to result in effects on the integrity of any of the identified European sites. These proposals will therefore be given no further consideration in this report.

A review of current applications on the Orkney Islands Council planning portal within 10 km of the site has, however, identified a proposal for a wind farm development (four turbines) on the Costa Head (Land Near), Swannay, Orkney, approximately 2.3 km north of the site. In addition, four other operational sites are located at 2.9 km south-east (Burgar Hill, Evie); 5.4 km south-east (Holodyke Wind Turbine, Birsay); 7.3 km south-east (Hammers Hill Extension); and 8.2 km south-east (Hammers Hill) (EIAR Chapter 8).

The potential for likely significant effects of the Nisthill Wind Farm project on Marwick Head SPA, North Orkney SPA and Rousay SPA have been screened out of this assessment due to limited impact pathways, and so it is also considered unlikely that in-combination effects with the four other wind farm developments listed above, would occur. As the potential for likely significant effects of the Proposed Development on Orkney Mainland Moors SPA and Loch of Isbister SAC have been screened in, then it is considered that there is potential for these five wind farm developments to act in-combination with the Proposed Development on site to result in effects on the integrity of the European sites.

5. Stage 2 - Appropriate Assessment

5.1 Orkney Mainland Moors SPA

The screening stage identified three factors that have the potential to result in likely significant effects on the SPA, including increased mortality of key species, disturbance to key species, and loss/deterioration of supporting habitat to key species, and so Orkney Mainland Moors SPA was screened in for further assessment. The further assessment is detailed in the sections below.

5.1.1 Increased mortality

The screening stage has identified the potential for increased mortality of the key species as a result of risk of collision with turbines on site, where flight paths are present at a height of 180 m or below. The potential for this effect on each species is discussed below.

5.1.1.1 Hen harrier

As shown within the EIAR (Chapter 8), the VP surveys recorded a total of 6154 seconds of flight time of hen harrier, 4980 seconds of which were recorded on site. Of the latter, 4836 seconds were recorded at a height of below 20 m, with just 30 seconds at potential collision height (25-180 m). This indicates that the vast majority of hen harrier flight paths lie below the collision risk height, with only 0.62% of flight time recorded at potential collision height. Based on this, in addition to the relatively small area covered by the turbines across the 120 ha site, it is considered unlikely that hen harrier would be at significant risk of mortality through collision with turbines, and the species was therefore not taken forward for collision risk modelling.

5.1.1.2 Short-eared owl

The VP surveys recorded a total flight time for short-eared owls of 1424 seconds, of which 1235 seconds were within the site and, of this, 261 seconds (21%) were located at potential collision height. Flight activity surveys recorded 13 short-eared owl flights across the site over the survey period, which was considered to be a low flight activity across the site as indicated in the EIAR (Chapter 8). It is therefore considered that short-eared owls are not at significant risk of collision with turbines, and therefore, like hen harrier, this species was not taken forward for collision risk modelling.

5.1.1.3 Red throated diver

The VP surveys recorded a total of 1534 seconds of flight time of red-throated diver of which 983 seconds were recorded within the site. Of the total flight time on site, 911 seconds were recorded at potential collision height which equates to 92.7% of total flights across the site. These flights however total just 13 flights throughout the survey period, which the EIAR (Chapter 8) concluded as low flight activity for commuting purposes only as this species spends the majority of their time on waterbodies. Due to the proportion of the flights located at potential collision height, collision risk modelling for this species was carried out.

The results of the collision risk modelling for red throated diver anticipate a total of 0.054 collisions per year (at an avoidance rate of 99.5%), which equates to 1.34 collisions over the lifetime of the scheme (25 years). This in total, demonstrates that 3.75% of the SPA population of red throated diver are at risk of collision over the 25-year project lifetime, which equates to 0.15% of the population per year.

As described in Nisthill Wind Farm EIAR Chapter 8, numerous studies have demonstrated that red throated diver do, however, possess a tendency to avoid wind farms (Halley & Hopshaug, 2007; Percival, 2014; Petersen, 2007; Topping and Petersen, 2011), therefore the collision risk level as above is considered to be precautionary as the avoidance rate is most likely higher at 99.8%. If this were applied, this gives a collision risk that equates to 0.021 collision per year (0.06% of the SPA population), and 0.53 collisions over the 25 year scheme (1.5% of the SPA population being at risk of collision over the 25-year lifetime of the scheme). Based on both of these eventualities, it is

considered that red throated diver are not at significant risk of collision as a result of the Proposed Development, and so the potential for likely significant effect on this species is unlikely.

5.1.2 Disturbance/Displacement of key species

The screening stage has identified the potential for disturbance and displacement to key SPA species, through increased noise and vibration during the construction phase. The current baseline levels of noise on site are low, with dominant noise sources recorded in the local area being from wind, an existing wind turbine, and farming activities. The development will result in an increase in noise levels above baseline conditions during the construction phase and to a lesser extent, the operational phase.

There is potential for disturbance to any SPA birds that may be nesting, foraging, and wintering (hen harrier), within the surrounding area, particularly those located within the SPA which lies within 100 m of the southern turbine. As the construction period is likely to extend across 12 months, there is potential for disturbance throughout the full breeding and wintering season. It is, however, acknowledged that potentially significant disturbance is likely to be limited to the construction phase activities, with the operational phase less likely to result in significant noise increases; thus, reducing long-term impacts. The potential for disturbance to key species is discussed below.

5.1.2.1 Hen harrier

The breeding bird surveys completed in 2021 confirmed all breeding attempts to be located outside of the site boundary. Two breeding sites were recorded within 2 km of the site, the closest, however, being over 500 m south from the site boundary. A further six breeding attempts were recorded within 2-4 km of the site. The desk study has identified a total of nine probable breeding records in 2019, six in 2020 and eight in 2021. None of these records were located within the site itself, with the nearest being over 500 m from the boundary. The closest working area/development footprint is likely to be a further 100 m north of the southern site boundary, thus increasing the distance between closest potential disturbance and known nest locations. A single hen harrier roost site was recorded outside the site, over 500 m from the nearest construction area, during both 2020-2021 and 2021-2022 non-breeding seasons.

Studies have found that hen harriers will nest at 200-300 m from an operational wind turbine, or closer (Madders & Whitfield 2006), and it is therefore unlikely that any known hen harrier nests will be disturbed during the operational phase. During wind farm construction, displacement has been found to occur to up to 500 m around construction sites and so the recommended no-disturbance buffer for construction activities is 500-750 m (Ruddock and Whitfield, 2007). As the closest known nest site is likely to be approximately 700 m from the location of the nearest construction activities (southern turbine), there is potential for a very small amount of disturbance to a single known nest towards the edge of this threshold. In addition, the recommended no-disturbance buffer for roosting hen harrier is 500 m (SNH, 2014), and the known roost site is located over 500 m from the site.

It is therefore considered unlikely that the development would cause significant disturbance to the nesting or roosting hen harrier population of the SPA, based on existing data on known nest and roost locations as this species is known to return to the same nest site each year. However, there is a possibility that new breeding territories may be created in closer proximity to the site in the future. If this was the case, there would be potential for likely significant effects as a result of disturbance /displacement during the construction phase, which could undermine the conservation objectives of the SPA, and therefore as a precaution, mitigation measures have been recommended (Section 5.3).

5.1.2.2 Short-eared owl

The breeding walkover surveys completed in 2021 identified three breeding attempts for short-eared owl outside the site and within the 2 km survey buffer. The desk study identified similar results in 2021 with three breeding attempts for this species in similar locations and a fourth between 2-4 km from the site. The exact locations of short-eared owl nests were not confirmed during the surveys as they are difficult to locate without causing unnecessary disturbance, however

it is presumed that known nest sites lie within 400 – 500 m of the nearest proposed works on site (as shown in the EIA Appendix 8.1).

The recommended no-disturbance buffer required for heavy construction activities is 300-500 m for breeding locations of short-eared owl (Ruddock and Whitfield, 2007). It is therefore possible that nests are located within the no-disturbance buffer for this species and so there is potential for disturbance to short-eared owl breeding attempts during the construction phase. If this was the case, there would be potential for likely significant effects as a result of disturbance /displacement during the construction phase, which could undermine the conservation objectives of the SPA, and therefore as a precaution, mitigation measures have been recommended (Section 5.3).

As noise levels of the operational phase are likely to be significantly less than during the construction phase, it is unlikely that at distance greater than 400 m from the site, any long-term disturbance to nesting short-eared owl would occur.

5.1.2.3 Red throated diver

No breeding records were identified within the site or within 1 km of the site boundary. The recommended no-disturbance buffer required for heavy construction activities is 500-750 m for breeding locations of red-throated diver (Ruddock and Whitfield, 2007). Given the lack of known breeding records for this species within 1 km of the site it is unlikely the construction activities will cause disturbance to red-throated diver breeding attempts. This species is known to return to the same nest site each year, however, there is a possibility that new breeding territories may be created in closer proximity to the site in the future. If this was the case, there would be potential for likely significant effects as a result of disturbance /displacement during the construction phase, which could undermine the conservation objectives of the SPA, and therefore as a precaution, mitigation measures have been recommended (Section 5.3).

5.1.3 Damage or deterioration of supporting habitats

The site may be considered a supporting habitat to the key SPA species, given its close proximity to the SPA and presence of similar habitat types. Approximately 90 ha (approx. 50% of the site) is considered to be potential supporting habitat of blanket bog, marshy grassland and wet heath. The size of the footprint of the development is approximately 5.1 ha in total, which includes the compounds, substation, borrow pit, access roads and four crane pads, the latter of which includes the turbines. The majority of this (including compounds, borrow pits, access roads and one of the turbines) lie within areas of improved grassland which is not concurrent with the SPA habitats, and this is therefore unlikely to result in damage or deterioration of supporting habitats. However, three of the turbines are located within potential SPA supporting habitat; one of which lies within an area of blanket bog and two within marshy grassland; both areas of which could be used by the SPA species as supporting habitat. The area of this is relatively small, covering approximately 3 ha in total (approximately 2.7% of the potential supporting habitat on site), and a small-scale permanent loss of habitat will therefore occur. However, the visual presence of the turbines may deter bird from using other areas of the site in the vicinity of the turbines and so the potential indirect 'loss' of habitat could be larger than just the development footprint itself, which may impact species that use the site as part of their foraging/hunting grounds.

Access roads will be created and so maintenance activities in the operational phase will be limited to access roads and crane pads. Therefore, following the initial habitat loss due to the development footprint, any further long-term damage, loss or deterioration of the supporting habitat is unlikely to occur.

5.1.3.1 Hen harrier

Hen harriers generally hunt within 3.5 km of their nest during the breeding season, however males range up to 7.3 km, and females generally stay within 500 m of the nest (Hardey et al., 2013). Known nest sites lie within 700 m from the site boundary, and the site therefore lies within the average 3.5 km hunt zone of a number of a nests. Hen harrier were confirmed to be using the site for hunting and commuting during the flight activity surveys and so loss of supporting habitat may occur. However, there is an abundance of suitable habitat across Orkney as it is a stronghold of the Scottish population of hen harrier (105 out of 501 breeding pairs). Therefore, given the wide range of

alternative hunting habitats within the ranges of this species in the local area and the distance to any breeding attempts or winter roost sites from any proposed works (over 700 m), the loss of a small amount of habitat on site is unlikely to have any significant impacts on foraging hen harrier.

5.1.3.2 Short-eared owl

Short-eared owls were registered on 13 occasions in flight activity surveys, with birds using the site to hunt and to commute to hunting grounds elsewhere in the local area. Short-eared owls will generally hunt within 2 km of their nest locations during the breeding season, although this may be extended up to 6 km depending on prey availability (Hardey et al., 2013). Short-eared owls will hunt in moorland and grassland habitats and feed on small mammals. As with hen harrier, much of the area within the site and wider area provide optimal foraging habitat for short-eared owls which is why they are relatively common, with around 25% of the Scottish population (283 of 1,088) found in Orkney (Wilson et al., 2015). However, as with hen harrier, given the wide range of hunting habitats available in the local area across the SPA, the loss of a small amount of habitat on site is unlikely to have a significant impact on foraging short-eared owls of the SPA population.

5.1.3.3 Red-throated diver

Red-throated divers were registered on 13 occasions in flight activity surveys, with birds using the site to commute between waterbodies. Red-throated divers spend almost all their time on waterbodies when not on the nest and are very unlikely to use the site for anything other than commuting between nesting and foraging areas. Given the fact that birds are only likely to use the airspace over the site, the impact on this species is likely to be limited to modifications to commuting routes only, with no significant loss of supporting habitat predicted.

5.1.4 Overall assessment

The assessment above has demonstrated that the development is unlikely to result in significant impacts to the SPA populations of key species, as a result of increased mortality risk, disturbance/displacement and loss of supporting habitats, with the exception of potential for disturbance to short-eared owl breeding attempts during the construction phase. Therefore, in addition to the potential for new breeding territories for all species being created closer to the site in the future, prior to works commencing, if this were the case, there would be potential for likely significant effects as a result of disturbance /displacement. As a precaution, mitigation measures have been recommended (Section 5.3).

5.2 Loch of Isbister SAC

The screening stage identified the potential for likely significant effects on Loch of Isbister SAC, as a result of the development. These potential impacts are attributed only to otter, and not to the qualifying habitats. Impacts may occur to otter through potential for increased mortality, disturbance and loss/deterioration of supporting habitat.

Loch of Isbister SAC is located approximately 4.8 km south-west of the site. Scotland's Environment mapping application shows that there are no main rivers directly connecting the site to the SAC; however, there is a network of streams and drainage ditches across the surrounding area. These do not directly connect the site to the SAC, but otters are known to travel distances over land (Chanin, 2003). The SAC lies within 1.4 km of Loch of Boardhouse, which has a direct connection along a watercourse to Loch of Hundland. Loch of Hundland is located within 150 m of the site's western boundary, which demonstrates connectivity of habitat between the SAC and the site. As otters are known to travel large distances (Chanin, 2003), sometimes over 20 km in one night across their territory, it is possible that the SAC population of otters could be present on site or in nearby habitats.

Desk study data has returned records of otter within the adjacent 10 km grid square to the south west of the site in 2019 as well as within 3.6 km to the south west of the site in 2016. Loch of Swannay offers potential to support foraging otter, with the loch supporting a population of fish, confirmed by a survey for Costa Head wind farm in 2016 which found two otter holts along the shores, approximately 1.7 km from the site boundary. Historical records (>10 years old) of otter were also returned through the data search; these were associated mainly with Loch of Hundland,

approximately 1.5 km south-west of the site. This evidence confirms otter presence in the surrounding area, but not on the site itself. The potential for likely significant effects to the otter population of the SAC as a result of the development on site is discussed below.

5.2.1 Potential for increased mortality

The majority of otter activity on or near the site is likely to be from animals foraging or commuting along the shore of Loch of Swannay or Loch of Hundland. It is likely otters do on occasions commute across the site between these two waterbodies, although this activity is likely to be at night only due to the nocturnal nature of otters.

The working area on site is proposed to be located away from both loch shores (70 m at its closest point) and so risks of increased mortality to otters in the lochs themselves is negligible. Any otters crossing the site are potentially vulnerable to mortality or injury due to collision with construction traffic or construction methods, such as falling into excavations and becoming trapped or injured from the fall. As the construction period is proposed to span over a 12 month period, there is potential for impacts to occur to a number of individual otters travelling to and from the SAC over this time. If this were to occur, it is considered that this could undermine the conservation objectives of Loch of Isbister SAC to maintain the population and distribution of otter. This therefore has the potential to result in a likely significant effect and so mitigation measures will be required (see Section 5.3). It is considered unlikely that the operational phase of development will present significant risks to otter as the long-term level of activity will be very low.

5.2.2 Disturbance to breeding otter

With the presence of otter in the local area, there is potential for disturbance to otters if natal dens were to be present within the 200 m disturbance buffer zone from the construction activities on the site, on the banks of Loch of Hundland or Loch of Swannay. However, the Extended Phase 1 Habitat Survey carried out in September 2021, included an assessment of the potential for otter on site including all habitat within 200 m of the site boundary. No suitable holt sites were recorded within 200 m of the site, with the banks of the lochs nearby being mainly flat. Drainage ditches are present to the north-east of the site, however these were also considered unsuitable as holt sites. In addition, the breeding population is likely to be centred around the SAC itself by definition, over 4.8 km away, and so it is concluded that otter holts, including any natal holts, are likely absent from the site and within the 200 m disturbance buffer zone. It is therefore considered unlikely that the development will result in significant effects to the breeding otter population of the SAC.

5.2.3 Disturbance to foraging/commuting otter

The potential noise and vibration impacts of construction phase activities on site has the potential to impact otter using the adjacent Loch of Swannay or Loch of Hundland. As otter have large territories of over 20 km, it is possible that the SAC population may use the adjacent lochs for foraging and commuting. This disturbance may cause them to avoid areas within their ranges for the duration of the disturbance event (12 months).

The point of the closest working area to the banks of Loch of Hundland to the west is over 170 m, at the northern point of the proposed access track. The majority of works are over 460 m away from Loch of Hundland, however. Although the Site itself borders Loch of Swannay to the east, the nearest proposed construction activity area is over 70 m from the loch bank. As the recommended buffer for disturbance to foraging/commuting otter is 50 m, in addition to the temporary nature of the construction phase, it is unlikely that the Proposed Development would result in significant disturbance of foraging/commuting otter of the SAC population.

5.2.4 Loss/deterioration of supporting habitat

It is possible that the SAC population of otter may use the site for dispersal or commuting to and from the SAC. However, the small scale of the development footprint, at approximately 5.1 ha in total, is unlikely to significantly reduce the potential commuting habitat of otter, given the abundance of suitable habitat in the surrounding area. No waterbodies will be impacted and so the development will not result in any direct loss of foraging grounds.

In addition, no significant barriers will be presented to otters commuting across the site from Loch of Swannay to Loch of Hundland as no additional fencing is to be installed on site. Access roads will be created, but these will be subject to occasional use in the long-term for access only for maintenance, and therefore will not present any significant barriers to otter movement across the site. It is therefore considered unlikely that the development will result in significant loss of supporting habitat of the SAC population of otter.

5.2.5 Overall assessment

It has been demonstrated that the SAC population of otter may use the site and surrounding habitats for foraging and commuting; however, any disturbance to foraging/commuting otter is not considered to result in a likely significant effect. Disturbance to breeding otter has also been screened out, along with significant loss or deterioration of supporting habitat. As there is potential for otter to use the site for dispersal between two adjacent lochs, there is potential for likely significant effects to occur as a result of increased mortality during the construction phase of development only.

5.3 Mitigation measures

Where likely significant effects have been identified in Sections 5.1 and 5.2, mitigation measures have been proposed to reduce the potential for impacts to qualifying features of the European sites.

5.3.1 Orkney Mainland Moors SPA

Required as a precaution due to the potential addition of new breeding sites in the future, measures to reduce the potential for disturbance to breeding SPA birds include the following;

- Not more than 12 months prior to construction of the Proposed Development, the Applicant will engage a Suitably Qualified Ecologist (SQE) to undertake a series of pre-construction ornithological surveys to update the baseline information. The aim of these surveys would be to provide up to date information in order to finalise the mitigation proposals. These surveys will aim to identify any new hen harrier, short-eared owl and red throated diver nest and roost locations on site and within the no-disturbance buffers for each species. If any nests are located, impacts will be assessed, and the no-disturbance buffers will be implemented.
- An ecological toolbox talk will be given to all construction personnel as part of site induction on the potential presence of ornithological species and any measures that need to be undertaken should such species be discovered during construction activities. The toolbox talk will also include the requirement to report and log any bird casualties during construction and operation of the site.

5.3.2 Loch of Isbister SAC

Measures to reduce the potential for increased mortality of the population of otter, if dispersing across the site during the construction phase, are detailed below:

- A suitably qualified Ecological Clerk of Works (ECoW) will be appointed prior to the commencement of any construction activities. The ECoW will be present to oversee construction activities as well as providing toolbox talks to all site personnel with regards to presence of otter.
- An otter-specific protection plan will be developed which will specify:
- Construction activities including movement of vehicles carried out in day time hours only, between 07.00 and 19.00, avoiding any night-time working when otters are more likely to be active.
- Any exposed pipe systems will be capped when not being worked on and exit ramps will be provided for any exposed trenches or excavations (to prevent otters entering and becoming trapped).

- Driver awareness requirements will be covered in the toolbox talk and 10 mph speed controls will be regulated within the site to limit the risk of road traffic accident mortality.

5.4 In combination effects

The potential for in-combination effects of both the Proposed Development and the proposed wind farm development at Costa Head (approximately 1.25 km north of the site, with proposed turbines located 2 km north), in addition to three other existing wind farm sites, on the above European sites has been identified in the Screening Stage.

The Appropriate Assessment has identified the potential for significant effects of the Nisthill scheme, in the absence of mitigation and so has identified the need for certain mitigation measures, which when implemented, will mean that the Proposed Development on site is unlikely to result in significant effects on the SPA and SAC. Based on this, and due to the largely localised impacts of the development, along with the location of Costa Head being further from the Orkney Mainland Moors SPA and Loch of Isbister SAC than the site is (with the other four sites being further away), and in addition to the conclusion of the assessments for each site which all appear to have identified no likely significant effects (as shown in the EIAR, Chapter 8), it is considered unlikely that any in-combination effects would occur to undermine the conservation objectives of the European sites.

5.5 Outcome of Appropriate Assessment

With the mitigation implemented, it is concluded that the proposed works are unlikely to have a significant adverse effect to Orkney Mainland Moors SPA and Loch of Isbister SAC, along with their qualifying species and supporting habitats. The zone of influence of the project is limited, and an in-combination effect is unlikely to occur. Thus, the conservation objectives of both European sites is concluded to be maintained throughout this project and the project is not likely to constitute a threat to the integrity of either European site.

5.6 Conclusion

Based on the information provided in this report, it is anticipated that the competent authority, under Regulation 63 of the Conservation of Habitats and Species Regulations 2017, will conclude that the Proposed Development has the potential to result in likely significant effects on European sites, in the absence of mitigation.

The competent authority must therefore undertake an Appropriate Assessment of the implications of the Proposed Development on the qualifying features of these sites, in light of their published conservation objectives.

Subject to implementation of mitigation measures detailed herein (i.e. pre-commencement update breeding bird survey, otter-specific protection plan, toolbox talks and ECoW), it is anticipated that the Appropriate Assessment will conclude the proposed works will **have no likely adverse effect on the integrity of any European sites, alone or in combination with other plans or projects.**

Through submission of this report, it is considered that Infinergy Ltd have discharged their duty under Regulation 63(2) to, “provide such information as the competent authority may reasonably require for the purposes of the assessment”.

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