Beatrice Offshore Wind Farm Consent Plan

Navigational Safety Plan

February 2016

Beatrice
Offshore Windfarm Ltd

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Project Title/ Location	Beatrice Offshore Wind Farm
Project Reference Number	LF0000005
Date:	February 2017

Beatrice Offshore Wind Farm

Navigational Safety Plan

Pursuant to 36 Consent Condition 18 and Marine Licence (Offshore Transmission Works) Condition 3.2.2.9

For approval of the Scottish Ministers

Rev	Prepared By	Sign Off	Checked By	Sign Off	Approved By	Sign Off	Date of Issue
5.0	Steve Bellew, GoBe Consultants Ltd	[redacted]	Jonathan Wilson, Consenting and Stakeholder Manager, BOWL	[redacted]	Steven Wilson, Senior PM, BOWL	[redacted]	02/02/2017

Consent Plan Overview

Purpose of the Plan

This Navigational Safety Plan (NSP) has been prepared to address the specific requirements of the relevant conditions attached to Section 36 Consent and Marine Licences issued to Beatrice Offshore Windfarm Limited (BOWL).

The overall aim of the NSP is to set out the navigational safety measures to be applied during the construction and operation of the Beatrice Wind Farm and Offshore Transmission Works (OfTW).

Scope of the Plan

The NSP covers, in line with the requirements of Section 36 and Marine Licence conditions, and in line industry standards and good practice, the following:

- Navigational safety measures during construction: Temporary lighting and marking; buoyage; safety zones; management of the construction area; recommended routes and entry/exit gates; and, vessel safety requirements.

- Navigational safety measures during operation: Marine coordination; safety zones; management of operations and maintenance activities; recommended routes and entry/exit gates; and, vessel safety requirements.

- Anchoring areas.

- Notifications to other stakeholder and sea users.

- Emergency response.

Structure of the Plan

The NSP is structured as follows:

Sections 1 to 4 set out the scope and objectives of the NSP, provide an overview of the Project, set out broad statements of compliance and detail the process for making updates and amendments to this document.

Section 5 describes the navigational safety measures to be applied during construction.

Section 6 describes the navigational safety measures to be applied during operation.

Sections 7 to 9 sets out information on anchoring, notifications to other sea users, and emergency response, which are applicable to all phases of the Development.

Section 10 confirms that the measures set out in the NSP comply with the requirements of Marine and Coastguard Agency published guidance.

Section 11 confirms that the measures set out in the NSP are compliant with those described and assessed in the original Application.

Appendices list relevant legislation, demonstrate compliance with the original Application and MCA guidance, and provide a list of stakeholders to which navigational notifications will be issued.

Plan Audience

This NSP is intended to be referred by personnel involved in the design, construction and operation of the Beatrice Project, including BOWL personnel, a future Offshore Transmission Operator, Key Contractors and Subcontractors.

Plan Locations

Copies of this NSP are to be held in the following locations:

- BOWL Head Office;
- At the premises of any agent, Key Contractor or Subcontractor acting on behalf of BOWL;
- All site offices dealing with marine operations;
- The BOWL Marine Coordination Centre at Wick; and
- On all vessels.

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List of Abbreviations and Definitions

Term	Definition / Description
AIS	Automatic Identification System.
AtoN	Aids to Navigation.
BEIS	Department for Business Energy and Industrial Strategy
BOWL	Beatrice Offshore Windfarm Limited (Company Number SC350248) and having its registered office at Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ.
CAA	Civil Aviation Authority.
CFMS	Commercial Fisheries Mitigation Strategy.
COLREG	Convention on the International Regulations for Preventing Collisions at Sea 1972.
Commencement of the Development	The date on which Construction begins on the site of the Development/Works in accordance with the Consent(s).
Company	BOWL.
Consent Conditions	The terms that are imposed on BOWL under the S36 Consent or Marine Licence Consent that must be fulfilled throughout the period that the Consents are valid.
Construction	As defined at section 64(1) of the Electricity Act 1989, read with section 104 of the Energy Act 2004.
Decommissioning Programme	A programme for decommissioning the relevant object, to be submitted by the Company to the Secretary of State under section 105(2) of the Energy Act 2004 (as amended).
Development	The Beatrice Offshore Wind Farm in the outer Moray Firth, comprising the Wind Farm and the OfTW.
EGC	Enhanced Group Calls.
ERCoP	Emergency Response Co-operation Plan.
ES	Environmental Statement submitted to the Scottish Ministers by the Company on 23 April 2012 as part of the Application.
Final Commissioning of the Development	The date on which all wind turbine generators forming the Development/Works have supplied electricity on a commercial basis to the National Grid, or such earlier date as the Scottish Ministers deem the Development to be complete.
HLV	Heavy-Lift Vessel.

Term	Definition / Description
HSE	Health and Safety Executive.
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities.
IALA Recommendation O-139	IALA Recommendation O-139 On The Marking of Man Made Offshore Structures.
IMO	International Maritime Organization
Key Contractors	The Contractors appointed for the individual work steams of Marine Installation; Transmission; and WTGs.
KIS-ORCA	Kingfisher Information Service - Offshore Renewable & Cable Awareness.
Landfall	The point above MHWS near Portgordon, where the OfTW cable connects to the onshore transmission works.
LAT	Lowest Astronomical Tide.
Licencing Authority	Marine Scotland Licensing and Operation Team on behalf of The Scottish Ministers.
LMP	Lighting and Marking Plan as required for approval under Condition 20 of the S36 Consent and Condition 3.2.2.14 of the OfTW Marine Licence.
LNtoM	Local Notice to Mariners.
M+F	Both merchant ships and fishing vessels.
MAIB	Marine Accident Investigation Branch.
Marine Licences	The written consent granted by the Scottish Ministers under Section 20(1) of the Marine (Scotland) Act 2010, which was issued on 2nd September 2014.
MARPOL	International Convention for the Prevention of Pollution from Ships 1973/78.
MCA	Maritime and Coastguard Agency.
MF	Medium frequency.
MFOWDG	Moray Firth Offshore Wind Developers Group.
MGN	Marine Guidance Note.
MHWS	Mean high water springs.
MSN	Merchant shipping notices.

Term	Definition / Description
MS-LOT	Marine Scotland Licensing and Operations Team
NAVAREA1	NAVAREA are the geographic areas in which various governments are responsible for navigation and weather warning. NAVAREA1 relates to the North-East Atlantic which covers the sea area around the United Kingdom. The UKHO acts as the NAVAREA I Co-ordinator for the International Maritime Organization (IMO) and International Hydrographic Organization (IHO) Worldwide Navigational Warning Service (WWNWS) and also as the United Kingdom National Co-ordinator for issuing coastal navigational warnings.
Navtex	Navigational Telex - an international automated medium frequency direct-printing service for delivery of navigational and meteorological warnings and forecasts, as well as urgent marine safety information to ships.
NLB	Northern Lighthouse Board.
nm	Nautical miles.
NSP	Navigational Safety Plan as required for approval under Condition 18 of the S36 Consent and Condition 3.2.2.9 of the OfTW Marine Licence.
NtM	Notice to Mariners.
NUC	Not Under Command
O&M	Operations and Maintenance.
OfCOM	Office of Communications.
OFTO	Offshore Transmission Operator.
OfTW	The Offshore Transmission Works. The OfTW includes the transmissions cable required to connect the Wind Farm to the Onshore Transmission Works. This covers the Offshore Transformer Modules (OTMs) and the cable route from the OTMs to the Mean High Water Springs (MHWS) at the landfall west of Portgordon on the Moray coast.
OREI	Offshore Renewable Energy Installation.
OTM	Offshore Transformer Module means an alternating current (AC) OSP which is a standalone modular unit that utilises the same substructure and foundation design as a wind turbine generator.
RYA	Royal Yachting Association

Term	Definition / Description
S36 Consent	Consent granted by the Scottish Ministers under Section 36 of The Electricity Act 1989 to construct and operate the Beatrice Offshore Wind farm electricity generating station, dated 19 h March 2014.
SEIS	Supplementary Environmental Information Statement submitted to the Scottish Ministers by the Company on 29 May 2013 as part of the Application.
SHL	Seaway Heavy Lifting Ltd.
Site	The area outlined in red in Figure 1 attached to the S36 Consent at Annex 1, and in black in the Marine Licences in Part 4, i.e. the boundary of the Wind Farm and OfTW.
SOLAS	International Convention for the Safety of Life at Sea 1974.
STCW	The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers.
STDL	Siemens Transmission and Distribution Ltd.
Subcontractors	Subcontractors to the Key Contractors.
SWPL	Siemens Wind Power Ltd.
UKHO	United Kingdom Hydrographic Office.
VHF	Very High Frequency.
VMP	Vessel Management Plan as required for approval under Condition 16 of the S36 consent and Condition 3.2.2.8 of the OfTW Marine Licence.
Wind Farm	The offshore array development as assessed in the ES including wind turbines, their foundations, inter-array cabling and meteorological masts.
Works	The Beatrice Offshore Windfarm Ltd. Wind Farm or Offshore Transmission Works (the OfTW), as described in the Marine Licences.
WTG	Wind Turbine Generator.
WZ	UK Coastal Navigational Warnings.

1 Introduction

1.1 Background

1.1.1 The Beatrice Offshore Wind Farm received consent under Section 36 of the Electricity Act 1989 from the Scottish Ministers on 19 March 2014 (the S36 Consent) and was granted two Marine Licences from the Scottish Ministers, for the Wind Farm and associated Offshore Transmission Works (OfTW), on 2 September 2014 (reference: [04461/16/0]/[04462/16/0]).

1.2 Objectives of this Document

1.2.1 The S36 Consent and Marine Licences contain a variety of conditions that must be discharged through approval by the Scottish Ministers/Licensing Authority prior to the commencement of any offshore construction works. One such requirement is the approval of a Navigational Safety Plan (NSP), which is to provide details of the measures that will be used to manage navigational safety throughout construction, operation and decommissioning (where applicable) of the Development.

1.2.2 The relevant conditions setting out the requirement for a NSP for approval, and which are to be discharged by this NSP, are presented in full in Table 1.1. An Emergency Response Cooperation Plan (ERCoP) (LF000005-PLN-187) has been prepared and is described in Section 9.3.

1.2.3 This document is intended to satisfy the requirements of the S36 Consent and Marine Licence (OfTW) conditions by providing a navigational safety plan that can be practically implemented during construction and operation (and in the case of emergency response also decommissioning[1]) to ensure safe navigation.

1.2.4 This NSP sets out means to mitigate risks to vessels working on the Development, as well as third party vessels, during construction and operation and maintenance to ensure that navigational safety is not compromised. Matters related to the management of vessel movements are set out, for approval in the Vessel Management Plan (VMP) (LF000005-PLN-168) whilst matters relating to the lighting and marking design of the Development to ensure safe navigation is set out for approval in the Lighting and Marking Plan (LMP) (LF000005-PLN-136).

[1] Broader navigational safety measures to be applied during decommissioning will be developed separately, in line with the Decommissioning Programme and in accordance with the relevant conditions of the S36 Consent and the OfTW Marine Licence.

Table 1.1 - NSP consent conditions to be discharged by this document

Ref.	Condition Text	Where Addressed
Section 36 Consent Condition 18	The Company must, no later than 6 months prior to the Commencement of the [Wind Farm], submit a Navigational Safety Plan ("NSP"), in writing, to the Scottish Ministers for their written approval.	This document sets out the NSP for approval by the Scottish Ministers.
	Such approval may only be granted following consultation by the Scottish Ministers with MCA, NLB and any other navigational advisors or organisations as may be required at the discretion of the Scottish Ministers.	To be undertaken by the Scottish Ministers.
	The NSP must include, but not be limited to, the following issues: a) Navigational safety measures;	Section 5 (construction) and Section 6 (operation)
	b) Construction exclusion zones;	Section 5.4 (construction) (see also Section 6.3 (operation))
	c) Notice(s) to Mariners and Radio Navigation Warnings;	Section 8
	d) Anchoring areas;	Section 7
	e) Temporary construction lighting and marking;	Section 5.2
	f) Emergency response and co-ordination arrangements for the construction, operation and decommissioning phases of the Works; and	See Section 9 – Full ERCoP to be submitted separately for approval
	g) Buoyage.	Section 5.3 (construction buoyage)
	The Company must confirm within the NSP that they have taken into account and adequately addressed all of the recommendations of the MCA in the current Marine Guidance Note 371 [superseded by Marine Guidance Note 543], and its annexes that may be appropriate to the Development, or any other relevant document which may supersede said guidance.	Section 10 and Appendix D
OfTW Marine Licence Condition 3.2.2.9	The [OfTW] must, at all times, be constructed and operated in accordance with the approved NSP (as updated and amended from time to time by the Company).	This document sets out the NSP for approval by the Licensing Authority.
	Any updates or amendments made to the NSP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval.	To be undertaken by the Licencing

Ref.	Condition Text	Where Addressed
		Authority.
	The NSP must include, but not be limited to, the following issues: a) Navigational safety measures;	Section 5 (construction) and Section 6 (operation)
	b) Construction exclusion zones;	Section 5.4 (construction) (see also Section 6.3 (operation))
	c) Notice(s) to Mariners and Radio Navigation Warnings;	Section 8
	d) Anchoring areas;	Section 7
	e) Temporary construction lighting and marking;	Section 5.2
	f) Emergency response and co-ordination arrangements for the construction, operation and decommissioning phases of the Works; and	See Section 9 – Full ERCoP to be submitted separately for approval
	g) Buoyage.	Section 5.3 (construction buoyage)
	The Licensee must confirm within the NSP that they have taken into account and adequately addressed all of the recommendations of the MCA in the current Marine Guidance Note 371 [superseded by Marine Guidance Note 543], and its annexes, that may be appropriate to the Works, or any other relevant document which may supersede said guidance.	Section 10 and Appendix D

1.2.5 In addition to the specific consent requirements for a NSP and the requirements thereof (as set out in Table 1.1), this NSP also includes information in respect of a number of other conditions within the Project consents which are linked to the matter of navigational safety; these are set out in Table 1.2.

1.2.6 Whilst this NSP does not seek to explicitly discharge these conditions, it provides the relevant information on the measures to be put in place to allow them to be discharged prior to commencement of the Development, and/or during the progress of construction and during operation.

Table 1.2 - Other consent conditions relevant to this NSP

Reference	Summary of condition	Where addressed
Wind Farm Marine Licence Condition 3.2.1.3	Navigational and Aviation Safety and Charting The Licensee must, as soon as reasonably practicable prior to Commencement of the [Wind Farm], notify the UK Hydrographic Office ("UKHO") of the proposed works to facilitate the promulgation of maritime safety information and updating of nautical charts and publications through the national Notice to Mariners system. The Licensee must, as soon as reasonably practicable prior to the Commencement of the [Wind Farm], ensure that local mariners, fishermen's organisations and HM Coastguard, in this case [National Maritime Operations Centre], are made fully aware of the Licensable Marine Activity through local Notice to Mariners or any other appropriate means. The Licensee must ensure that details of the [Wind Farm] are promulgated in the Kingfisher Fortnightly Bulletin, as soon as reasonably practicable prior to Commencement of the [Wind Farm] to inform the Sea Fish Industry of the vessel routes, the timings and the location of the [Wind Farm] and of the relevant operations. The Licensee must prior to Commencement of the [Wind Farm], complete an "Application for Statutory Sanction to Alter/Exhibit" form and submit this to the Northern Lighthouse Board ("NLB") for the necessary sanction to be granted. The Licensee must, prior to Commencement of the [Wind Farm], ensure that the location of all WTGs is made available for inclusion in the Clyde Cruising Club Sailing Directions and Anchorages. The Licensee must, prior to the Commencement of the [Wind Farm], and following confirmation of the approved Design Specification and Layout Plan ("DSLP") by the Licensing Authority, provide the precise location and maximum heights of all WTGs, meteorological mast(s) and construction equipment over 150 m above lowest astronomical tide ("LAT"), and details of any lighting fitted to all WTGs, to the UKHO for aviation and nautical charting purposes	Section 8
Wind Farm Marine Licence Condition 3.2.2.3	Navigational safety The Licensee must notify the UKHO of the progress of the [Wind Farm] to facilitate the promulgation of maritime safety information and updating of nautical charts and publications through the national Notice to Mariners system. The Licensee must notify, from Kirkwall to Peterhead, local mariners, fishermen's organisations and HM Coastguard, in this case [National Maritime Operations Centre], of the progress of the [Wind Farm] through local Notice to Mariners or any other appropriate means. The Licensee must ensure that the progress of the [Wind Farm] is promulgated in the Kingfisher Fortnightly Bulletin to inform the Sea Fish Industry of the vessel routes, the timings and the location of the [Wind Farm] and of the relevant operations. ……. The Licensee must ensure that no radio beacon or radar beacon operating in the Marine frequency bands are installed or used on the [Wind Farm] without the prior written approval of the Office of Communications ("OfCom"). ……..	Section 8
Wind Farm Marine Licence Condition	Navigational safety The Licensee must notify the UKHO of the Completion of the [Wind Farm] to facilitate the promulgation of maritime safety information and updating of nautical	Section 8

Reference	Summary of condition	Where addressed
3.2.3.2	charts and publications through the national Notice to Mariners system. The Licensee must, within 1 month of the Completion of the [Wind Farm], provide the "as-built" positions and maximum heights of all WTGs, along with any sub-sea infrastructure, to the UKHO for aviation and nautical charting purposes. The Licensee must ensure that local mariners, fishermen's organisations and HM Coastguard, in this case [National Maritime Operations Centre], are made fully aware of the Completion of the [Wind Farm]. The Licensee must ensure that the Completion of the [Wind Farm] is promulgated in the Kingfisher Fortnightly Bulletin to inform the Sea Fish Industry. …… The Licensee must ensure that no radio beacon or radar beacon operating in the Marine frequency bands are installed or used on the [Wind Farm] without the prior written approval of OfCom.	
OfTW Marine Licence Condition 3.2.2.14	Navigational and Aviation Safety and Charting The Licensee must, as soon as reasonably practicable prior to Commencement of the [OfTW], notify the UK Hydrographic Office ("UKHO") of the proposed works to facilitate the promulgation of maritime safety information and updating of nautical charts and publications through the national Notice to Mariners system. The Licensee must, as soon as reasonably practicable prior to the Commencement of the [OfTW], ensure that local mariners, fishermen's organisations and HM Coastguard, in this case [National Maritime Operations Centre], are made fully aware of the Licensable Marine Activity through local Notice to Mariners or any other appropriate means. The Licensee must consult with the Buckie Harbour Master where appropriate, who may wish to issue local warnings to alert those navigating in the vicinity to the presence of the [OfTW] during construction. The Licensee must ensure that details of the [OfTW] are promulgated in the Kingfisher Fortnightly Bulletin, as soon as reasonably practicable prior to the Commencement of the [OfTW] to inform the Sea Fish Industry of the vessel routes, the timings and the location of the [OfTW] and of the relevant operations. The Licensee must prior to Commencement of the [OfTW], complete an "Application for Statutory Sanction to Alter/Exhibit" form and submit this to the NLB for the necessary sanction to be granted. The Licensee must, prior to Commencement of the [OfTW], ensure that the location of all OSPs and cables are made available for inclusion in the Clyde Cruising Club Sailing Directions and Anchorages. ……. The Licensee must, prior to the Commencement of the [OfTW], and following confirmation of the approved DSLP by the Licensing Authority, provide the precise location and maximum heights of all OSPs, and construction equipment over 150 m above lowest astronomical tide ("LAT"), and details of any lighting fitted to all OSPs, to the UKHO for aviation and nautical charting purposes.	Section 8
OfTW Marine Licence Condition 3.2.3.5	Navigational safety The Licensee must notify the UKHO of the progress of the [OfTW] to facilitate the promulgation of maritime safety information and updating of nautical charts and publications through the national Notice to Mariners system. The Licensee must notify, from Kirkwall to Peterhead, local mariners, fishermen's organisations and HM Coastguard, in this case [National Maritime Operations Centre], of the progress of construction of the [OfTW] through local Notice to	Section 8

Reference	Summary of condition	Where addressed
	Mariners or any other appropriate means. The Licensee must ensure that the progress of construction of the [OfTW] is promulgated in the Kingfisher Fortnightly Bulletin to inform the Sea Fish Industry of the vessel routes, the timings and the location of the [OfTW] and of the relevant operations. ……. The Licensee must ensure that no radio beacon or radar beacon operating in the marine frequency bands are installed or used on the [OfTW] without the prior written approval of the Office of Communications ("OfCom"). …….	
OfTW Marine Licence Condition 3.2.4.5	Navigational safety The Licensee must notify the UKHO of the Completion of the [OfTW] to facilitate the promulgation of maritime safety information and updating of nautical charts and publications through the national Notice to Mariners system. The Licensee must, within 1 month of Completion of the [OfTW], provide the "as-built" positions and maximum heights of all OSPs, along with any sub-sea infrastructure, to the UKHO for aviation and nautical charting purposes. The Licensee must ensure that local mariners, fishermen's organisations and HM Coastguard, in this case [National Maritime Operations Centre], are made fully aware of the Completion of the [OfTW]. The Licensee must ensure that the Completion of the [OfTW] is promulgated in the Kingfisher Fortnightly Bulletin to inform the Sea Fish Industry. ……. The Licensee must ensure that no radio beacon or radar beacon operating in the marine frequency bands are installed or used on the [OfTW] without the prior written approval of the OfCom.	Section 8
OfTW Marine Licence Condition 3.2.3.6	Markings, lighting and signals of the [OfTW] The Licensee must ensure site boundaries are marked by Cardinal Mark buoys (number to be determined when the final layout of the [OfTW] is known). The Cardinal Mark buoys shall be a minimum of 3 metres in diameter at the waterline, have a focal plane of at least 3 metres above the waterline and be of suitable construction for the sea conditions commonly experienced in the Outer Moray Firth. The light range on these buoys shall be 5 nautical miles (nm). All required buoyage shall remain in place until Completion of the [OfTW] or otherwise notified by the Licensing Authority. […]	Section 5.3

1.3 Linkages with other Consent Plans

1.3.1 This NSP document sets out the proposed navigational safety measures for the Wind Farm and OfTW. However, ultimately it will form part of a suite of approved documents that will provide the framework for the construction process – namely the other Consent Plans required under the S36 Consent and Marine Licences.

1.3.2 The consent conditions relating to this NSP do not explicitly identify linkages between this and other Consent Plans (see Table 1.1). However, other conditions in the consents require that several Consent Plans be consistent with the NSP; these plans are identified in Table 1.3.

1.3.3 In addition, this NSP makes reference to a number of other relevant consent plans that are not explicitly linked in the consent conditions but that have a bearing on or contain information relevant too this NSP – specifically the Lighting and Marking Plan (prepared for approval in response to S36 Consent Condition 20 and OfTW Marine Licence Consent Condition 3.2.1.4, the LMP details the lighting and marking of the Development in accordance with the relevant maritime and aviation legislation), but also the Environmental Management Plan (EMP) (LF000005-PLN-144) and the Development Specification and Layout Plan (DSLP) (LF000005-PLN-152).

Table 1.3 – NSP linkages with other Consent Plans

Other Consent Plan	Consistency with and linkage to NSP
The Vessel Management Plan (VMP) (LF000005-PLN-168) (required under S36 Consent Condition 16 and OfTW Marine Licence Condition 3.2.2.8)	The VMP will consider the management and coordination of vessels. The VMP must be, so far as is reasonably practicable, consistent with the NSP.
The Wind Farm Construction Method Statement (CMS) (LF000005-PLN-145) (required under S36 Consent Condition 11) The OfTW CMS (LF000005-PLN-184) (required under OfTW Marine Licence Condition 3.2.2.4)	The purpose of the CMS is to detail the methods that will be implemented during the construction of the Development. The CMS must be, so far as is reasonably practicable, consistent with the NSP.
Wind Farm Operation and Maintenance Programme (OMP) (LF00000F-PLN-178) (required under S36 Consent Condition 17) OfTW OMP (LF000005-PLN-185) (required under OfTW Marine Licence Condition 3.2.3.2)	The OMPs sets out the procedures and good working practices for the operational and maintenance (O&M) phase of the Development. The OMP must be, so far as is reasonably practicable, consistent with the NSP.

1.4 Structure of this NSP

1.4.1 In response to the specific requirements of the S36 Consent and the OfTW Marine Licence conditions, this NSP has been structured so as to be clear that each part of the specific requirements have been met and that the relevant information to allow the Scottish Ministers to approve the NSP has been provided. The document structure is set out in Table 1.4.

Table 1.4 – NSP document structure

Section		Summary of Content
1	Introduction	Background to consent requirements and overview of the NSP scope and structure; and Identifies those other Consent Plans relevant to the navigational safety and the linkage between those plans and the NSP.
2	BOWL Statements of Compliance	Sets out the BOWL statements of compliance in relation to the NSP consent conditions.
3	Updates and Amendments to this NSP	Sets out the procedures for any required updating to or amending of the approved NSP and subsequent further approval by the Scottish Ministers.
4	Project Overview	Provides an overview of the project details relevant to the NSP.
5	Navigational safety measures - construction	Sets out the navigational safety measures to adopted during the construction phase including temporary lighting and marking, buoyage, safety zones (including management of safety zones), recommended routes and entry and exit points, construction vessels and cable laying and other restricted in ability to manoeuvre (RAM) operations
6	Navigational safety measures - operation	Sets out the navigational safety measures to adopt during the operational phase including marine co-ordination, safety zones, management of operations and maintenance activities, recommended routes and entry and exit points, operations and maintenance vessels and restricted in ability to manoeuvre (RAM) operations and subsea cable inspections.
7	Anchoring areas	Describes the areas that may be used for anchoring (and areas to be avoided).
8	Notices to Mariners and Radio Navigation warnings	Sets out the notices to mariners, radio navigational safety warnings and other notifications to be promulgated at various stages of the development (prior to, during and following construction – and during operation).
9	Emergency Response	Sets out the framework for the emergency response procedure and marine incident reporting
10	Compliance with MGN543	Provides an audit of the relevant parts of MGN543 to demonstrate that this NSP addresses all the relevant requirements.
11	Compliance with the Application, ES and SEIS	Sets out how the mitigation measures related to navigational safety identified in the ES and SEIS are to be delivered.

2 BOWL Statements of Compliance

2.1 Introduction

2.1.1 The following statements are intended to re-affirm the BOWL commitment to ensuring that the Development is constructed and operated in such a manner as to meet the relevant legislative requirements set out by the project consents but also broader legislative requirements; specifically, it sets out:

- A number of statements of compliance relating to this NSP and the broader requirements of the project consents; and,
- Legislative requirements.

2.2 Statements of Compliance

2.2.1 BOWL in undertaking the construction and operation of the Development will ensure compliance with this NSP as approved by the Scottish Ministers (and as updated or amended from time to time following the procedure set out in Section 3 of this NSP).

2.2.2 Where significant updates or amendments to this NSP are required, BOWL will ensure the Scottish Ministers are informed as soon as reasonably practicable and where necessary the NSP will be updated and amended (see Section 3 below).

2.2.3 BOWL in undertaking the construction and operation of the Development will ensure compliance with other, relevant Consent Plans as approved by the Scottish Ministers and identified in Section 1.3 above.

2.2.4 BOWL in undertaking the construction and operation of the Development will ensure compliance with the limits defined by the original application and the project description defined in the Environmental Statement (ES) and Supplementary Environmental Information Statement (SEIS) and referred to in Annex 1 of the S36 Consent in so far as they apply to this NSP (unless otherwise approved in advance by the Scottish Ministers / the Licensing Authority) (see Section 11).

2.2.5 BOWL will require that all construction vessels meet the required, recognised standards and will comply with the international maritime rules (as adopted by the flag state) and regulations. Where necessary, BOWL will conduct appropriate independent vessel audits on all construction vessels to ensure they meet these standards and are fit for purpose for their prescribed roles.

2.2.6 All construction vessels will comply with the procedures and requirements set out in this NSP and in any other relevant consent plans such as the CMS, the VMP, the LMP, the OMP and the EMP.

2.3 Legislative Requirements

2.3.1 BOWL will, in undertaking the construction and operation of the Development, ensure compliance with all relevant legislation and that all necessary licences and permissions are obtained by the Key Contractors and Subcontractors, through conditions of contract and by an appropriate auditing process.

2.3.2 BOWL will comply - and require that BOWL contractors comply - with the requirements of relevant environmental and maritime legislation as standard. A register of relevant legislation, policy and guidance with which this NSP complies is presented in Appendix A.

3 Updates and Amendments to this NSP

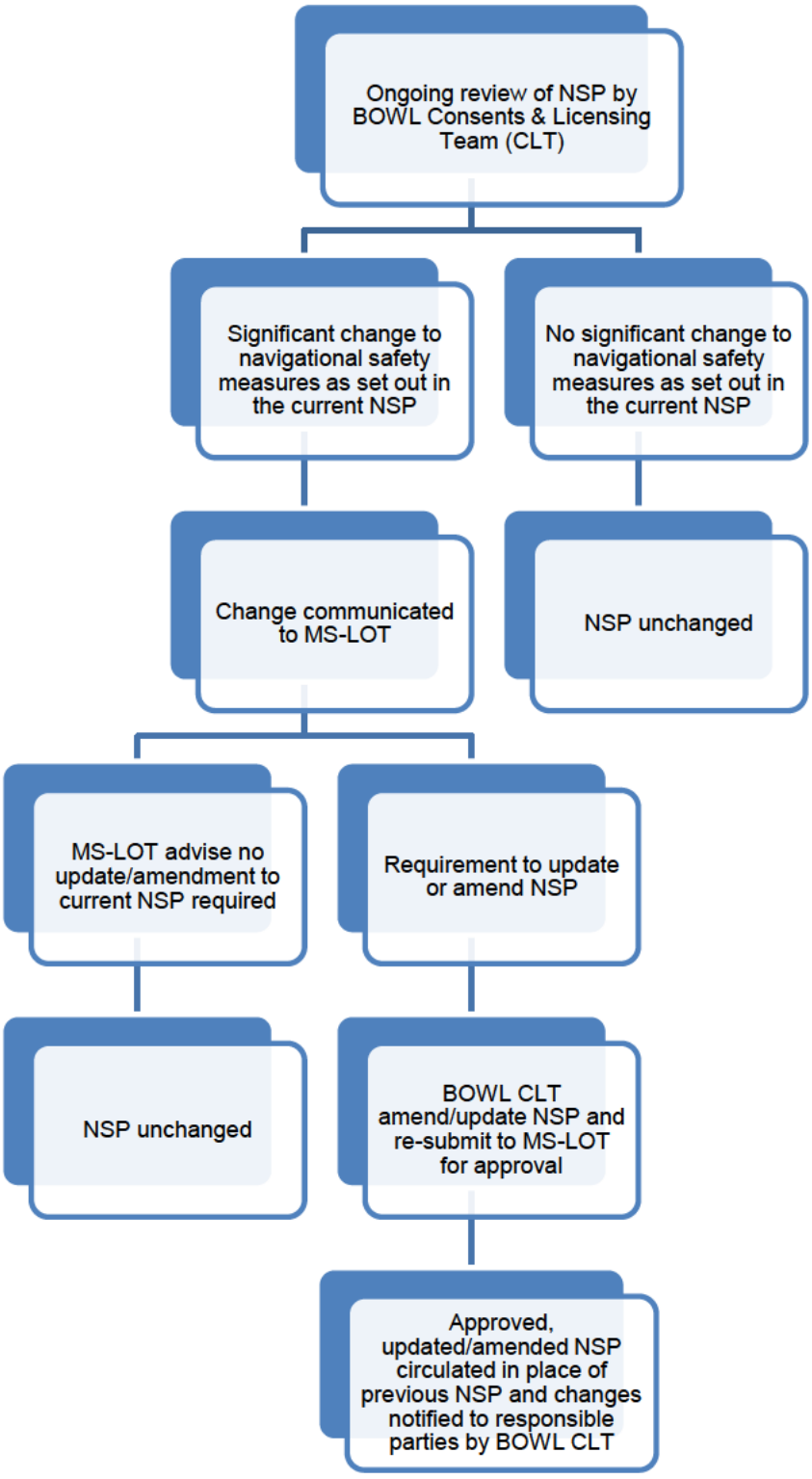
3.1.1 This NSP sets out the proposed navigational safety measures to be applied throughout the Development.

3.1.2 The S36 Consent condition recognises that updates or amendments to this NSP may be required, stating that:

The Development [Wind Farm] must, at all times, be constructed and operated in accordance with the approved NSP (as updated and amended from time to time by the Company [BOWL]). Any updates or amendments made to the NSP by the Company [BOWL] must be submitted, in writing, by the Company [BOWL] to the Scottish Ministers for their written approval.

3.1.3 Where it is necessary to update this NSP in light of any significant new information related to navigational safety requirements, BOWL propose to use the change management process set out in Figure 3.1 to identify such information, communicate changes to the Scottish Ministers, re-draft the NSP, seek further approval of amendments or updates, and disseminate the updated version of the NSP.

Figure 3.1 – NSP Change Management Procedure



4 Project Overview

4.1 Introduction

4.1.1 This section provides a brief overview of the Beatrice Offshore Wind Farm project relevant to the NSP and sets out in relation to BOWL and the Key Contractors, main roles and responsibilities.

4.2 Development Overview

4.2.1 The Development will consist of the following main components:

- A total generating capacity of not less than 588MW;
- Up to 84 wind turbines of 7MW rated generating capacity;
- Jacket substructures each installed on four pile foundations driven into the seabed;
- Two AC substation platforms, referred to as offshore transformer modules (OTMs) to collect the generated electricity and transform the electricity from 33kV to 220kV for transmission to shore;
- A network of circa 140km of inter-array, buried or mechanically protected, subsea cables to connect strings of turbines together and to connect the turbines to the OTMs;
- 2 buried or mechanically protected, subsea export cables, totalling circa 140km in length, to transmit the electricity from the OTMs to the land fall at Portgordon and connecting to the onshore buried export cables for transmission to the onshore substation and connection to the National Grid network;
- One Interconnector Cable of circa 1.2km in length that links the OTMs to one another; and,
- Minor ancillary works such as the potential deployment of metocean buoys and permanent navigational marks.

4.2.2 Figure 4.1 below shows the location of the Development in the Moray Firth, and identifies potential construction and operation ports. BOWL has identified Wick Harbour as the location of the Marine Coordination centre and as the Operations and Maintenance (O&M) port. Nigg Energy Park has been selected as the construction laydown port for wind turbine components and Invergordon for deep berthing and grout loading during foundation installation. In addition, Buckie Harbour been identified as an alternative harbour facility for utilisation during Construction. It is not anticipated that Buckie Harbour will be used routinely during Construction and O&M activities. However, in the event that Wick Harbour is inaccessible due to adverse weather conditions or where additional capacity is required, Buckie Harbour may be used.

4.2.3 Figure 4.2 below sets out the final layout of the Wind Farm array, including the locations of the wind turbines and OTMs. Full details of the wind farm layout and design are set out, for approval in the DSLP.

4.2.4 Minimum air gap between HAT and the rotor blade tips will be 28.5 metres. This is compliant with the guidance provided in MGN543 which requires a minimum air gap between rotor blade tip and MHWS of 22m.

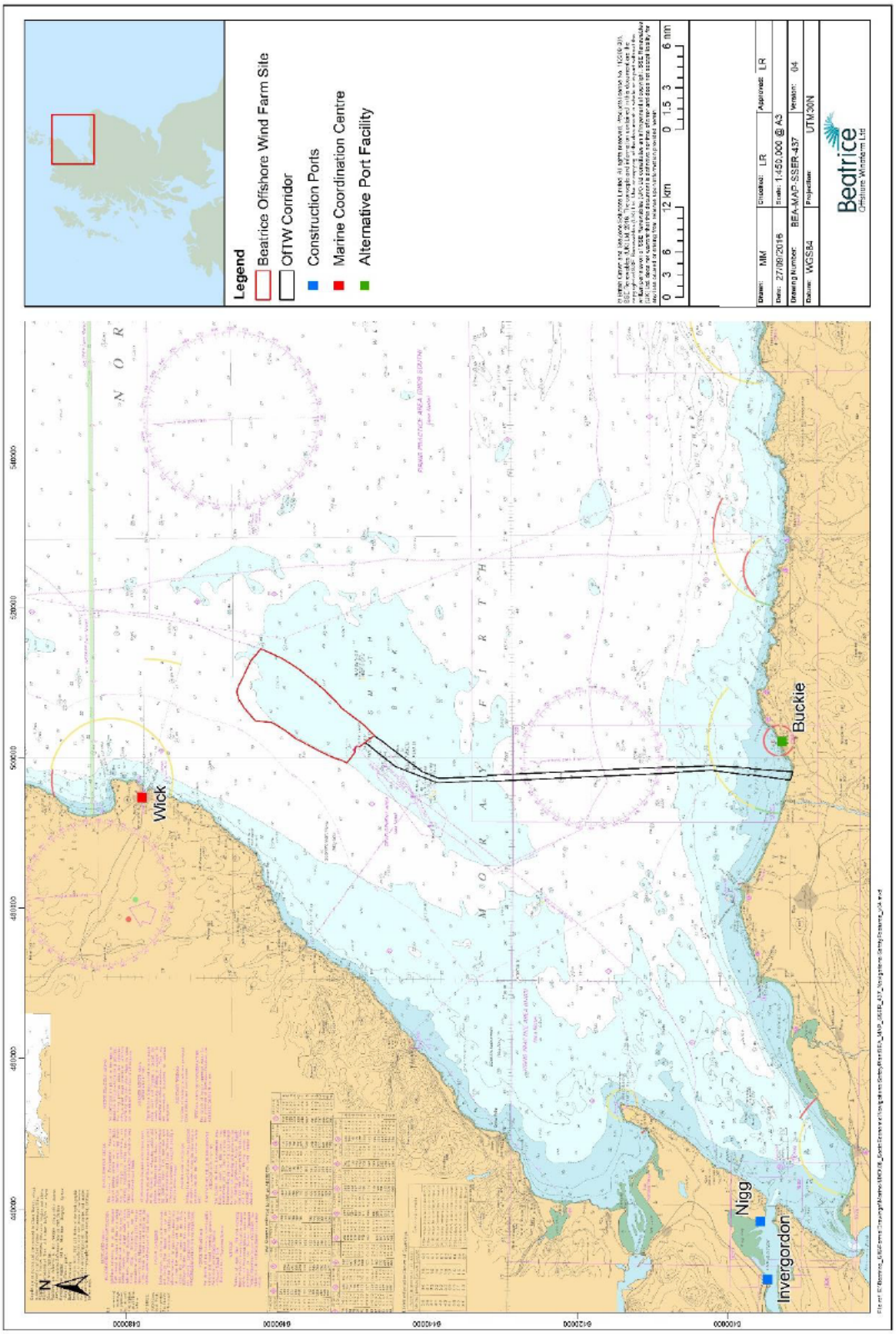


Figure 4.1 – Wind Farm location and OfTW cable route and Main Ports

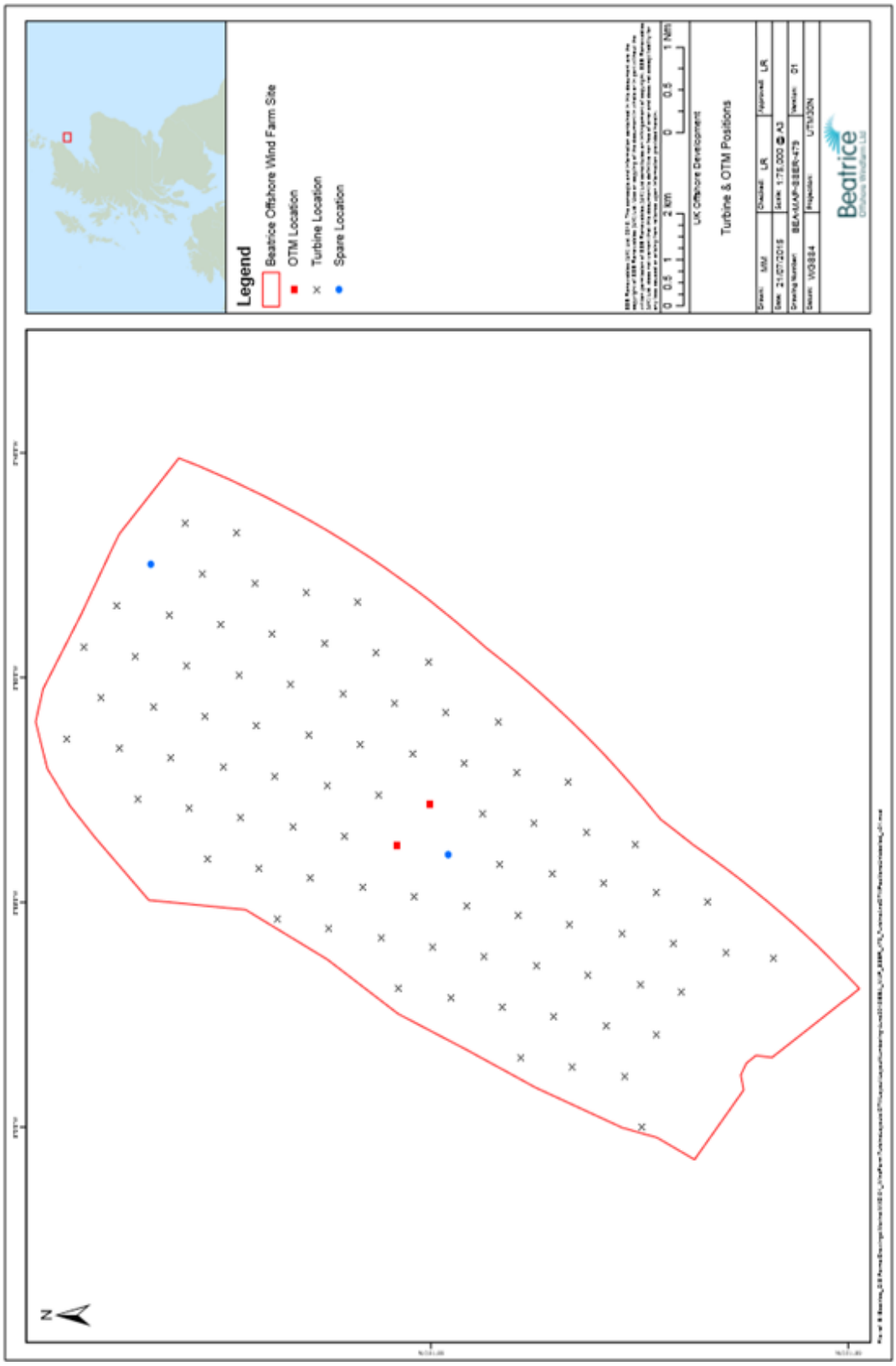


Figure 4.2 – Beatrice Wind Farm wind turbine and OTM layout

4.3 Timing of Construction Works

4.3.1 Details of the construction programme for the works are provided in the Construction Programme (CoP) (LF000005-PLN-138) consent plan (required under Condition 10 of the Section 36 Consent and Condition 3.2.2.3 of the OfTW Marine Licence). It is currently anticipated that offshore construction works will be carried out around the clock (i.e. 24 hour working 7 days a week unless noted otherwise).

4.4 BOWL and Key Contractor Roles and Responsibilities

4.4.1 All Masters of vessels, agents, Key Contractors and Subcontractors engaged in the construction or operation of the development will be required to comply with the approved NSP insofar as it is relevant to their engagement. BOWL will provide a copy of this NSP, and any subsequently amended versions of this NSP, to the Masters of any vessels, agents, contractors or sub-contractors engaged in the Development.

4.4.2 The Key Contractors engaged on the project are set out in detail in the Wind Farm CMS and OfTW CMS which also sets out the main roles, responsibilities and organisational structures for the Key contractors and the BOWL team.

4.4.3 Roles and responsibilities for the operational phase are set out in the Operation and Maintenance Programme (OMP).

4.4.4 The main roles and responsibilities of the Key contractors will be as follows:

- SHL:
    - Wind turbine and OTM jacket foundation and substructure installation using SHL vessel(s) (with sub-contractors used for additional barges, anchor handling tugs and towing tugs as required);
    - OTM topside lift using SHL heavy lift vessel (with sub-contractors used for additional barges, anchor handling tugs and towing tugs as required);
    - Inter-array cable installation (to be completed by subcontractor Siem Offshore Inc.).
- SWPL:
    - Management of the construction laydown port facility where the wind turbine components will be pre-assembled ready for installation;
    - Wind turbine installation using a jack-up vessel
    - Wind turbine cable connections and commissioning works (with sub-contracted crew transfer vessels used to transport personnel to carry out completion and commissioning activities);
- STDL:
    - OTM topside supply and commissioning (with sub-contracted crew transfer vessels used to transport personnel to carry out OTM

completion and commissioning activities).

- Nexans Norway:
  - Export cable and OTM interconnector cable design and manufacture;
  - Export cable and OTM interconnector cable laying and trenching using cable lay, trenching and support vessels;
  - Installation of cable ducts at landfall using sub-contractor and landfall cable pull in.

4.4.5 During the operational phase, BOWL will retain responsibility for managing the Wind Farm, and would prefer to maintain responsibility for managing the OfTW, dependent on whether an agreement can be reached with the appointed OFTO.

4.4.6 During the operations and maintenance phase, BOWL will contract appropriate companies to undertake maintenance and repairs as required. The types of activities that will be undertaken will include the following:

- Maintenance and servicing of wind turbines and OTMs;
- Maintenance of lighting and marking;
- Monitoring of scour around wind farm structures and cables; and,
- Where necessary, monitoring and repair of inter-array and/or export cables.

5 Navigational Safety Measures during Construction

5.1 Introduction

5.1.1 The following section sets out the navigational safety measures that BOWL will implement during the construction of the Wind Farm and OfTW, including details on matters specifically required by the consent conditions, namely:

- Temporary construction lighting and marking;
- Buoyage (construction); and
- Construction safety zones.

5.1.2 In addition, it sets out a number of additional requirements relating to:

- Recommended routes and entry and exit gates;
- Matters relating to construction vessels; and
- Cable laying and other RAM activities.

5.1.3 Details of anchoring areas, the promulgation of Notices to Mariners and Radio Navigational Warnings and emergency response cooperation arrangements are set out separately in Sections 7, 8 and 9 respectively of this NSP.

5.1.4 Matters related to navigational safety during operation are addressed separately under Section 6.0 below.

5.2 Temporary Lighting and Marking

5.2.1 Marine and aviation marking, including lights, visual marks and construction buoyage will be provided in accordance with NLB, Civil Aviation Authority (CAA), MCA, and the Defence Infrastructure Organisation (DIO) requirements.

5.2.2 Information related to Lighting and marking is set out in detail for approval by the MS-LOT/the Licensing Authority in the Lighting Management Plan (LMP) provided for approval by the Scottish Ministers.

5.2.3 In relation to temporary lighting and marking, the LMP sets out the relevant provisions for approval pending consultation with NLB prior to any break in construction, which are, in summary, as follows in relation to partially completed structures left over the winter period:

- Fixed structures marked with a Flash Yellow 2.5 second light (visible through 360°) with a 2 nm range.

5.2.4 Construction buoyage is described separately under section 5.3 below.

5.2.5 Prior to commencing construction of the Development, BOWL will complete an “Application for Statutory Sanction to Alter/Exhibit” form and submit this to the NLB for

the necessary sanction to be granted.

5.2.6 During construction, the Development shall be marked and/or lit as required by the NLB (and as set out in the LMP), and the marking will be continued unless and until the Licensing Authority directs otherwise.

5.3 Construction Buoyage

5.3.1 The construction area will be the area defined by the presence of the agreed construction buoyage, as required by NLB, the detail of which set out in detail for approval by the MS-LOT/the Licensing Authority in the Lighting Management Plan (LMP) provided for approval by the Scottish Ministers.

5.3.2 In summary, the construction buoyage will be comprised of:

- Cardinal buoys on the principle compass points; and
- Four special mark buoys.

5.3.3 Figure 5.1 shows the proposed construction area and construction buoyage for the Wind Farm.

5.3.4 The Cardinal Mark buoys will be a minimum of 3 metres in diameter at the waterline, have a focal plane of at least 3 metres above the waterline and be of suitable construction for the sea conditions commonly experienced in the Outer Moray Firth. The light range on these buoys shall be 5nm.

5.3.5 No buoyage will be used to demarcate the export cable works during cable installation works.

5.3.6 In addition, once the Wind Farm construction area is established, and vessels are vulnerable due to partially completed construction works, the construction area will be monitored by an appropriate number of Guard Vessels to further protect and provide information to any third party vessels until radar and CCTV monitoring capabilities are installed (See Paragraph 5.5.7 below for more details).

5.3.7 The construction areas demarcated by the buoyage around the wind farm and export cable route will be areas within which vessels are advised not to transit or enter. Information relating to the buoyage will be promulgated in Admiralty Notices to Mariners, Local Notice to Mariners and radio navigational warnings as set out in Section 8 of this NSP

5.3.8 Following the final commissioning of the wind farm the buoyage used during the construction period will be removed, in agreement with NLB, and as set out in the LMP.

Figure 5.1 – Wind Farm Construction Buoyage

5.4 Construction Safety Zones

5.4.1 Section 95 and Schedule 16 of the Energy Act 2004 set out the basic requirements for applying for a safety zone to be placed around or adjacent to an offshore renewable energy installation (OREI). The Electricity (Offshore Generating Stations) (Safety Zones) (Applications Procedures and Control of Access) Regulations 2007 clarify the requirements for applications. It applies to territorial waters in or adjacent to Scotland and within the Renewable Energy Zone.

5.4.2 An application will be made to the Department for Business Energy and Industrial Strategy (BEIS) for Safety Zones whilst also serving notice of the application to Marine Scotland, in line with the 2007 Regulations and will be accompanied by a layout plan and construction programmes, and will also include proposals for notifying relevant stakeholders.

5.4.3 During construction, an application will be made for safety zones of 500 metres around the construction works (this will act to prohibit other marine users from entering the designated safety zone area, apart from during emergency incidents and with the exception of those vessels engaged in construction activities).

5.4.4 The construction safety zones will be applied on a “rolling” basis i.e. their application will follow the progress of the construction activities as it proceeds across the wind farm area. The rolling safety zone will be identified by the presence of a construction vessel working at an installation site. Construction safety zones would be applied around the major installation works, including:

- Installation of foundation piles;
- Installation of jacket substructures;
- Erection of the wind turbines on the foundation;
- Installation of the OTM foundation piles and jacket substructure;
- Installation of the OTM topsides;
- Inter-array cable connections on the wind turbine jacket substructures;
- Inter-array cable connections to the OTM; and
- Export cable connections to the OTM.

5.4.5 In addition, smaller safety zones of 50m radius may be applied for and be applied around partially completed structures but where active construction work is not underway (for example around partially completed foundations or jackets substructures, completed but not commissioned wind turbines etc) and around completed structures prior to commissioning. Pre-commission safety zones will remain in place until the WTG or OTM has been commissioned.

5.4.6 The status and location of safety zones within the wind farm will be promulgated on a regular basis throughout the construction period via the method set out in Section 8 of this NSP.

5.4.7 In line with the guidance set out in MGN543, in gaining consent for a Safety Zone, BOWL agrees to monitor the safety zone for infringements. Any infringements will be notified to BEIS along with supporting evidence of the infringement as noted in section 5.5.

5.5 Management of the Construction Area (including Safety Zones)

5.5.1 BOWL will establish a Marine Coordination Centre at Wick Harbour from where construction activities will be managed, including all communications internally and to third parties (see Section 8).

5.5.2 Movements of vessels around the Development (those engaged in the construction of the development and vessels passing nearby) will be monitored from the Marine Coordination Centre.

5.5.3 The Marine Coordination Centre will obtain and provide localised weather information for vessels working on the Development to plan the construction activities. It will also maintain a copy of the ERCoP (see Section 9) and will be the main point of contact in the event of emergency incidents.

5.5.4 Permission for construction vessels to enter the construction area and safety zones will be managed by the Marine Coordination Centre, for example using a Permit to Work system.

5.5.5 The Marine Coordination Centre will establish protocols for approaching and leaving the worksite as well as management systems to record the work being undertaken and the vessels and personnel undertaking that work.

5.5.6 The Marine Coordination Centre based in Wick (and operational in Quarter 1 2017) will ensure the safety of the site including the monitoring of activities and safety zones using appropriate methods such as Automatic Information System (AIS), radar, CCTV and guard vessels.

5.5.7 BOWL are committed to monitoring the wind farm site for the duration of the construction phase from installation until final handover to the O&M team. This will include monitoring of the 50m safety zones. AIS will be operational from the commencement of construction, and will be monitored by the Marine Coordination Centre.

5.5.8 Construction activities will be risk assessed to ensure the appropriate number of guard vessels is used to monitor the wind farm area from the commencement of installation activities in April 2017. Radar and CCTV will be installed on the OTMs with further CCTV capabilities installed on selected wind turbines to ensure adequate coverage of the Wind Farm. It is anticipated that the first CCTV and radar will be operational once the first OTM has been commissioned in mid-2018. Following on from this, AIS, radar and CCTV coverage will be used alongside guard vessels when required. Construction

vessels may provide limited guard vessel duties to maintain safety of the construction activities but this will not negate the requirement for appropriate numbers of guard vessels performing exclusive guard vessel duties. BOWL will provide a map of the location of CCTV units and the extent of radar and CCTV coverage to MS-LOT and MCA.

5.6 Recommended Routes and Entry/Exit Gates

5.6.1 BOWL will identify suitable vessel transport routes and entry/exit points to the construction areas. These are set out in the approved VMP.

5.6.2 These defined routes and entry/exit points will be used by construction vessels[2] to ensure they do not increase the risk of encounters with other commercial, recreational or fishing traffic within the Moray Firth, and to ensure local users are aware of areas where they are likely to encounter vessels associated with construction of the Development, as well as being designed to minimise impacts on sensitive bird and marine mammal species.

5.6.3 During the construction phase liaison will also be ongoing with local port operators to appropriately manage vessel movements in the wider Moray Firth area.

5.7 Construction Vessels

5.7.1 BOWL will require that all construction and operational vessels meet the required, recognised standards and will comply with the international maritime rules (as adopted by the relevant flag state) and regulations for their class and area of operation.

5.7.2 BOWL will conduct independent vessel audits on construction vessels as necessary to check that they meet these standards and are appropriate for the purpose of their prescribed roles.

5.7.3 BOWL will require that all construction and operational vessels will comply with the procedures and requirements set out in this NSP and in other relevant Consent Plans such as the VMP, the EMP, and the LMP.

5.7.4 All of the main installation vessels involved in construction will be equipped with AIS receivers and transmitters.

5.7.5 Further details of proposed construction vessels are set out within the approved VMP.

[2] It is noted that recommended routes are not compulsory and the Master of any vessel may alter their vessels course should navigational safety dictate in line with COLREGs.

5.8 Cable Laying and other RAM operations

5.8.1 Restricted in their Ability to Manoeuvre (RAM) vessels will be utilised during cable installation works and heavy lift operations. RAM vessels are those restricted in their ability to manoeuvre as a result of the nature of their work and therefore unable to keep out of the way of another vessel. They will comply with the International Convention for the Prevention of Collisions at Sea (COLREGS), which is the International Maritime Organizations convention to regulate vessel movements. All vessels regardless of nationality are required to comply with this Convention to ensure that they do not interact with vessels that are restricted in their navigational ability.

5.8.2 RAM vessels will display lights and shapes to indicate that they are RAM. They will transmit safety warning on Very High Frequency (VHF) to inform other vessels of their actions using the 'Sécurité' message, if the messages contain important safety information relevant to navigation. Communications between the RAM vessels and the Marine Control Centre will be ongoing throughout their operation.

5.8.3 RAM vessels will comply with vessel type regulation information transmitted through AIS, and show current navigational status at all times to ensure other vessels equipped with AIS can identify that they are a vessel engaged in a restricted operation.

5.8.4 Cable laying activities will be publicised through the notification procedures (see Section 8), and if necessary, guard vessels will be employed during the cable laying period.

6 Navigational Safety Measures during Operation and Maintenance

6.1 Introduction

6.1.1 The following Section sets out the navigational safety measures that BOWL will implement during the operation of the Wind Farm and OfTW, including details on:

- Marine Coordination;
- Operational safety zones;
- Management of operations and maintenance activity;
- Recommended routes and entry/exit gates;
- Operations and maintenance vessels
- RAM operations; and
- Subsea cable inspections.

6.1.2 Details of anchoring areas, the promulgation of Notices to Mariners and Radio Navigational Warnings and emergency response cooperation arrangements are set out separately in Sections 7, 8 and 9 respectively of this NSP.

6.2 Marine Coordination Centre

6.2.1 O&M activities will also be managed from the Marine Coordination Centre at Wick Harbour. The Marine Coordination Centre will be the focus of marine activities and coordinate all communications internally and to third parties. It will also maintain a copy of the ERCoP (Section 9) and will be the main point of contact in the event of emergency incidents.

6.2.2 The Marine Coordination Centre, part of the necessary O&M facilities, will monitor the vessel movements around the wind farm using AIS, radar and CCTV (located on OTMs and selected WTGs). Using these facilities other marine users in and around the BOWL Wind Farm will be monitored from the control centre, including potential Safety Zone infringements when safety zones are in place. This will be in addition to visual observations by personnel on Wind Farm vessels working within and around the Development.

6.3 Operational Safety Zones

6.3.1 BOWL do not currently propose to apply for routine safety zones during the operational phase of the Development. However, this decision will be kept under review and where it is considered necessary for purposes of safe navigation BOWL would may consider applying for 50 metre “Operational” Safety Zone around structures. Where necessary an application would be submitted to the BEIS with a safety case demonstrating the requirement.

6.3.2 BOWL will apply for safety zones of 500 metres to be applied during major maintenance work such as replacement of a turbine blade, or during "unplanned" works, such as to repair major faults. It is envisaged that only works that would require the use of a heavy lift vessel (HLV) or jack-up vessel would require the imposition of these safety zones, due to such vessels being restricted ability to manoeuvre and due to the nature of these maintenance operations.

6.3.3 As per MGN 543, in applying and gaining consent for a safety zone BOWL agree to monitor the safety zone for unlawful infringements. Any infringements should be notified to BEIS along with supporting evidence of the infringement.

6.4 Management of Operations and Maintenance Activities

6.4.1 The Marine Coordination Centre will establish protocols for approaching and leaving the Development site, and manage systems to record the work being undertaken, and vessels and personnel undertaking the work.

6.4.2 The Marine Coordination Centre will ensure the safety of the site using appropriate monitoring methods including CCTV and radar and where necessary, guard vessels (see section 5.5.6).

6.5 Recommended Routes and Entry/Exit Gates

6.5.1 As for construction, BOWL will identify suitable vessel transport routes and entry/exit points to the operational wind farm. These are set out in the approved VMP.

6.5.2 These defined routes and entry/exit points will be used by operations and maintenance vessels[3] to ensure they do not increase the risk of encounters with other commercial, recreational or fishing traffic within the Moray Firth, and to ensure local users are aware of areas where they are likely to encounter vessels associated with the operation and maintenance of the Development, as well as being designed to minimise impacts on sensitive bird and marine mammal species.

6.5.3 During the operational phase liaison will also be ongoing with local port operators to appropriately manage vessel movements in the wider Moray Firth area.

6.6 Operation and Maintenance Vessels

6.6.1 All vessels used on site during the operational phase will be required to comply with legislation appropriate for their class and area of operation. The on-board health and safety requirements for all vessels will be required to meet the prescribed standards

[3] It is noted that recommended routes are not compulsory and the Master of any vessel may alter their vessels course should navigational safety dictate in line with COLREGs.

established by BOWL Safety Management System.

6.6.2 BOWL will conduct independent vessel audits on operational vessels as necessary to check that they meet these standards and are appropriate for the purpose of their prescribed roles.

6.6.3 Vessel crews will be required to meet the requirements for the size, type and area of operation in line with the Standards for Training, Certification and Watch keeping (STCW) set out by the International Maritime Organization, and any site specific requirements implemented by BOWL above minimum standards.

6.6.4 Operational and maintenance vessels will be installed with AIS receivers and transmitters where major maintenance or repair works are required.

6.7 Restricted in the Ability to Manoeuvre (RAM) operations

6.7.1 Vessels restricted in their ability to manoeuvre (RAM) may be used during cable maintenance and heavy lift operations and will comply with the International Convention for the Prevention of Collisions at Sea (COLREGS). They will transmit safety warnings on VHF to inform other vessels of their actions, using the 'Sécurité' message if the messages contain important safety information relevant to navigation.

6.7.2 Cable maintenance will be publicised through the notification procedures (see Section 8), and where necessary, guard vessels will be employed during the cable maintenance period.

6.8 Subsea Cable Inspections

6.8.1 Following installation, an assessment will be completed identifying areas of cable at potential risk of exposure in the future. Monitoring of these 'at-risk' areas will be conducted annually. Subject to the findings of the surveys, the frequency of these will be adapted. Further information is provided in the Wind Farm Cable Plan (CaP) (LF000005-PLN-183) and the OfTW CaP (LF000005-PLN-214).

6.8.2 Concerns noted by other users of the sea, or via the inspection process in relation to cable burial will be promulgated via the methods set out in Section 8. The MCA will be informed of any significant changes in burial depth or cable protection.

7 Anchoring Areas

7.1.1 Figure 7.1 illustrates the locations of known small and large anchorage areas within the Moray Firth relative to wind farm and the OfTW and Table 7.1 summarises the relevant details of the anchorages (noting that a vessel can anchor in any water it deems safe and where anchoring is not prohibited).

7.1.2 Anchoring is at the decision of the vessel Master but can be in conjunction with information provided by the Marine Coordination Centre or port authorities where relevant. Standard marine practice however requires that a vessel anchors having considered various factors such as:

- Water depth;
- Seabed type and charted hazards including cables/pipelines;
- Weather and tidal information including current and predicted weather;
- Avoidance of prohibited anchorage areas;
- Consideration for other anchored vessels;
- Avoidance of known areas of other marine activity such as fishing or recreational boating; and
- Avoidance of main commercial routes, pilot boarding areas or other navigational features such as spoil grounds or subsea cables.

7.1.3 Construction vessels requiring anchorage within the wind farm area will request permission to do so from the Marine Coordination Centre.

Table 7.1: Summary of Anchorage Areas within Moray Firth

(Note this table contains all charted anchorages as described in the Pilot Book for the area (North Coast of Scotland, NP52: 115_0 Moray Firth and 1889_0 Cromarty Firth). Not all anchorages will be suitable for all vessel types).

Anchorage	Description
1. Freswick Bay	Anchorage is afforded to coasters in a depth of 6m, sand, in the northern part of the bay; care is necessary to avoid a dangerous wreck near the centre of the bay.
2. Sinclair's Bay	In fine settled weather Sinclair's Bay affords fair anchorage but it is not safe in unsettled conditions. With winds between southwest and southeast the best berth is in the southern part of the bay in a depth of 16m with Ackergill Tower bearing 230° and Noss Head bearing 105° as indicated on the chart
3. Littleferry	Anchorage can be found in about 3m southeast of the village of Littleferry, noting that submarine cables are laid across Littleferry between the disused peers.
4. Dornoch Firth	There is anchorage in depths of 6-7m, mud and sand, fair holding, eight cables east-south-east of Dornoch Point as indicated on the chart; the berth is sheltered from north easterly swell by Gizzen Briggs.
5. Wilkhaven	0.5nm east of Wilkhaven in depths of 13-14m with the extremity of Tarbat Ness bearing 321°.
6. Rockfield	0.5nm east of Rockfield in a depth of about 15m with the extremity of the land bearing 017°.

Anchorage	Description
7. Shandwick Bay	Off Shandwick Bay with the breakwater at Balintore bearing 314° distant 0.45 cables in a depth of 14m, sand, fair holding only; there is nearly always a swell in this anchorage and is untenable in easterly weather. Great care must be taken to avoid a submarine oil pipeline which, as indicated on the chart, is landed in Shandwick Bay from the Beatrice Oil Field.
8. Cromarty Firth Inner Anchorage	There is anchorage anywhere in the fairway between Cromarty and Invergordan in depths not exceeding 30m. In the vicinity of Invergordan the holding ground is only fair and deep water space is restricted; large vessels anchored in this vicinity may experience difficulty when getting under way during the out-going tidal stream. Numbered anchor berths for ships are indicated on the chart.
9. Cromarty Harbour Anchorage	Anchorage can be found for coasters about 0.2nm west of the harbour in a depth of about 6m as indicated on the chart.
10. Cromarty Firth Outer Anchorage	There is an anchorage for tankers in a depth of about 21m, sand and mud, 3.25nm east-south-east of South Sutor as indicated on the chart. Additionally, four anchorage berths, numbered 14 – 17, for other vessels lie between 0.7nm and 1.75nm south east of South Sutor.
11. Burghead Outer Anchorage	A recommended anchorage lies 1nm west of the harbour entrance in a depth of about 11m, sand. Disused cables in this vicinity are no longer considered a hazard but a submarine outfall pipe, over which depths may be about 2.5m less than charted on account of rock protection, extends 0.55nm north west from the extremity of Burghead.
12. Lossiemouth Outer Anchorage	If anchoring temporarily to await suitable tides for entry marines are advised to keep Civesea Skerries Light open north of Stotfield Head and to remain in depths of not less than 10m. The best berth for larger vessels is in a depth of about 13m with the harbour entrance bearing 242° and Halliman Skerries Beacon (2nm west-north-west) bearing 277° as indicated on the chart. The holding ground in this berth is good, but 0.2nm farther east the bottom is rocky and the holding bad. Whenever anchoring off Lossiemouth care is necessary to avoid a submarine outfall, the extremity of which is marked by a buoy (special) 0.5nm north east of the harbour entrance.
13. Spey Bay	Anchorage is available anywhere in Spey Bay west of the meridian 3° West, but mariners are advised to remain in depths of not less than 10m. In the event of strong north east winds the anchorage should be vacated at once as in these conditions the sea quickly starts to break at a considerable distance offshore.
14. Cullen Bay	Anchorage can be found in the outer part of Cullen Bay, as indicated on the chart, with the railway viaduct bearing 193° and Scar Nose bearing about 280° in depths of 9-11m. Port Long (close west of Logie Head), a rocky cove with a sandy bottom, is used as a temporary refuge by local craft unable to make Cullen Harbour during strong winds from the northern quadrant.
15. Sandend Bay	Sandend Bay is entered between Redhythe Point (57° 41'N, 2°43'W) and Garron Point (1nm west) and has a sandy beach at its head. The village of Sandend, where there is a small boat harbour, lies in the south west corner of the bay.

Anchorage	Description
16. Whitehills	Vessels awaiting sufficient tide to permit entering Whitehills Harbour can anchor, as indicated on the chat, 0.5nm offshore north west of the harbour entrance, with Durn Hill bearing 203°, in a depth of about 12m.
17. Macduff Outer Anchorage	Recommended anchorage area located approximately 1.0 – 2.5nm north of the entrance to Macduff Harbour. Holding ground consists of fine sand, shingle and pebbles in depths of 34 -38m. Care should be taken to avoid the subsea cable to the west of the anchorage area.
18. Gamrie Bay and Gardenstown	Gamrie Bay extends between More Head (57° 41'N, 2°22'W) and Crovie Head (1.25nm northeast) and anchorage can be obtained within the bay as indicated on the chart. Gardenstown Harbour dries but has depths of 2.7m and 3.5m at high water neap tides and high water spring tides respectively, and quays with a total length of about 510m. During north east winds there is considerable swell in the harbour but Craig Dagerty and the ridge to the south afford good shelter from north westerly winds. At the village of Crovie, 0.7nm north east of Gardenstown, there is a pier and a landing slip which covers at high water spring tides.
19. Pennan Bay and Cullykhan Bay	Pennan Bay and Cullykhan Bay are two small rocky bays which lie adjacent to each other in an indentation of the coast between Pennan Head (57° 41' N, 2° 15'W) and Lion's Head (0.9nm west-north-west) on which there are some buildings and the ruins of Fiddes Fort. The village of Pennan lies at the foot of steep cliffs at the head of Pennan Bay, the easterly of the two bays. Tamhead and Howdman, two drying rocks lies, respectively, in the approach to Pennan Bay and Cullykhan Bay. Local knowledge is required to enter the bays. Two small piers at the eastern end of Pennan Village afford shelter to fishing boats which are hauled out of the water in bad weather.
20. Aberdour Bay	Aberdour Bay is entered between Quarry Head (57° 41'N, 2° 10'W) and Strahangles Point (1.5nm west) and affords anchorage as indicated on the chart.

7.2 Anchorage Areas to be Avoided

7.2.1 The consultation undertaken to date has not indicated the need for any specific areas to be avoided by construction vessels when anchoring; operational experience may however identify such areas and where this is the case such areas will be communicated to all relevant vessels engaged in construction or operational activity.

Figure 7.1 – Anchorage Areas in the Moray Forth

8 Notices to Mariners and Radio Navigation Warnings

8.1 Introduction

8.1.1 This Section provides information on the proposed approach to distributing and issuing Notice(s) to Mariners (NtMs) and other appropriate notifications to the relevant stakeholders and other marine users.

8.2 Local Notices to Mariners (LNtM)

8.2.1 Local Notices to Mariners (NtMs) will be issued when required during the Project. Specific actions that will be completed during the various phases of the Project are set out in the Sections below. LNtMs will be issued to the organisations listed in Appendix B.

8.2.2 The LNtMs issued will be concise, detailing navigational safety information and may include, but not be limited to, the information set out in Table 8.1.

Table 8.1: Local Notice to Mariners Content

Title	Clearly state the document is a LNtM and a short relevant title about the scope of the topic. This should include the date of issue and the notice number.
Supplementary information	Details of the organisation and project issuing the LNtM and any relevant LNtMs issued prior to the current one.
Detail	• Date/Time of start/finish and location of work (coordinates) • Vessels on Site including call signs • Activity being undertaken • Specific risks to navigation and presence of safety zones if applicable.
Contact details	Sufficient details to allow mariners to contact the organisation issuing the LNtM.
Links	Provided only if absolutely necessary.

LNtN Issued Prior to the Commencement of the Development

8.2.3 BOWL will, as soon as reasonably practicable prior to construction commencing ensure that local mariners, fishermen's organisations and HM Coastguard, in this case the National Maritime Operations Centre are made fully aware of the Licensable Marine Activity through LNtMs (or any other appropriate means).

LNtM Issued During Construction

8.2.4 The Marine Coordination Centre will notify, from Kirkwall to Peterhead, local mariners, fishermen's organisations and HM Coastguard, in this case the National Maritime Operations Centre, of the progress of the construction of the Development. This will include any faults to aids to navigation which may impact navigational safety.

LNtM Issued Upon Commissioning and During Operation

8.2.5 BOWL will ensure that local mariners, fishermen's organisations and HM Coastguard, in this case National Maritime Operations Centre, are made fully aware of the completion of the construction works and the commissioning of the Development.

8.2.6 BOWL will ensure that relevant stakeholders are informed via LNtMs of any planned and unplanned maintenance activities that are outside the day to day maintenance activities carried out at the Development.

8.3 Admiralty Notices to Mariners (UK Hydrographic Office)

8.3.1 Admiralty Notices to Mariners (NtMs) are issued by the UK Hydrographic Office (UKHO) and can include chart corrections. The UKHO issues these on a weekly basis to provide physical corrections to charts and associated publications. It is the responsibility of mariners to look up the Weekly Editions of Admiralty NtMs which can be found on the UKHO website and to make any necessary corrections to the charts on board their vessel.

NtMs Issued Prior to the Commencement of the Development

8.3.2 BOWL will, as soon as reasonably practicable prior to construction commencing on the Development, notify the UK Hydrographic Office ("UKHO") of the proposed Development to facilitate the promulgation of maritime safety information and updating of nautical charts and publications through the national Notice to Mariners system.

8.3.3 As soon as reasonably practicable prior to Commencement of the Development, but following approval of the DSLP, BOWL will provide the precise location and maximum heights of all wind turbine generators, OTMs and construction equipment over 150 m above LAT and details of any lighting fitted to all Wind Turbines and OTMs, to the UKHO for aviation and nautical charting purposes.

Temporary and Preliminary (T&P) NtMs

8.3.4 Temporary and Preliminary (T&P) NtMs is a type of NtM which indicate works about to commence and temporary changes to charts. BOWL will ensure that NtMs are issued when required prior to the commencement of any construction operations.

8.3.5 BOWL will ensure that a T&P NtM is issued to UKHO at the start of the construction

works and the UKHO is likely to issue the NtM as a chart correction covering the Development site as “Construction in Progress” until it is fully completed.

8.3.6 T&P NtMs will be required prior to the commencement of any construction activities throughout the construction period and may also be issued on a regular basis throughout construction as required.

NtMs Issued During Construction

8.3.7 The UKHO will be notified of the progress of the construction of the Development to facilitate the promulgation of maritime safety information and updating of nautical charts and publications through the national Notice to Mariners system.

NtMs Issued Upon Commissioning

8.3.8 BOWL will notify the UKHO of the Completion of the construction of the Development to facilitate the promulgation of maritime safety information and updating of nautical charts and publications through the national Notice to Mariners system.

8.3.9 BOWL will, within 1 month of the Completion of the construction of the Development, provide the “as-built” positions and maximum heights of all wind turbines, OTMs and any sub-sea infrastructure, to the UKHO for aviation and nautical charting purposes.

8.4 UK Hydrographic Charts

8.4.1 Wind Turbines will be charted by the UK Hydrographic Office using the magenta turbine tower or wind farm area chart symbol (found in publication ‘NP 5011 - Symbols and Abbreviations used in Admiralty Charts’) on appropriate scale charts.

8.4.2 Submarine inter-array cables associated with Wind Farm will also be charted on the appropriate scale charts.

8.5 Kingfisher Bulletins and KIS-ORCA

8.5.1 The Kingfisher Information Service - Offshore Renewable & Cable Awareness project (KIS-ORCA) is a joint initiative between Subsea Cables UK and Renewable UK and is being managed by the Kingfisher Information Service of Seafish. Information is available in fortnightly bulletins (Kingfisher - offshore wind and marine renewables) or downloadable from the KIS-ORCA website.

KIS-ORCA Notifications Prior to the Commencement of the Development

8.5.2 BOWL will ensure that details of the Development are promulgated in the Kingfisher Fortnightly Bulletin, as soon as reasonably practicable prior to Commencement of the Construction of the Development to inform the Sea Fish Industry of the vessel routes, the timings and the location of the Development, and of the relevant operations.

KIS-ORCA Notifications During Construction

8.5.3 BOWL, through the Marine Coordination Centre, will ensure that the progress of the construction of the Development is promulgated in the Kingfisher Fortnightly Bulletin to inform the Sea Fish Industry of the vessel routes, the timings and the location of construction activities.

8.5.4 Notifications to the Kingfisher Fortnightly Bulletin may include, for example, an overview of the project, roles and responsibilities, method statements relevant to the scope of work for which the notification is issued, offshore activity schedule, navigational safety procedures, safety zones, and any relevant drawings or other project information.

KIS-ORCA Notifications Upon Commissioning and During Operation

8.5.5 BOWL will ensure that the Completion of the Development is promulgated in the Kingfisher Fortnightly Bulletin to inform the Sea Fish Industry.

8.5.6 BOWL will ensure that notices are issued to the Kingfisher Fortnightly Bulletin detailing any planned and unplanned maintenance activities that are outside the day to day maintenance activities carried out at the development.

8.6 Radio Navigational Warnings

8.6.1 Radio Navigational Warnings may be issued if an activity or incident poses a danger to other marine users. Examples of when Radio Navigational Warnings could be issued at the Development are:

- Failures to light signals, fog signals, buoys or other aids to navigation;
- Establishing major new aids to navigation;
- Cable laying activities;
- Other underwater operations that may constitute potential dangers in or near shipping lanes; or,
- Not under command (NUC) vessels and emergencies.

8.6.2 Once details of an activity on site have been issued through the standard NtM process, the UKHO will then decide if the warning should be transmitted as a Radio Navigational Warning. The UKHO will then issue the navigational warning.

8.6.3 In the context of Radio Navigational Warnings the UKHO act as the NAVAREA I (NE Atlantic) Co-ordinator for the International Maritime Organization (IMO) and International Hydrographic Organization (IHO) Worldwide Navigational Warning Service (WWNWS) and also as the United Kingdom National Co-ordinator for issuing coastal navigational warnings. The Maritime and Coastguard Agency however is the overarching body responsible for broadcasting the warnings and are the organisation responsible for charging to broadcast them.

8.6.4 For information the broadcasts are under the control of the UKHO but tend to be made as follows:

- For vessels in NAVAREA1 broadcasts are made through EGC Safety NET within 30 minutes of receiving the navigational warning or at the next scheduled broadcast (every 12 hours);
- Broadcast by Navtex twice a day as UK Coastal Navigational Warnings (WZs) by appropriate Navtex stations at each transmission time (every 4 hours) or upon receipt of the information if it is of a vital nature; and
- Broadcast by VHF or Medium Frequency (MF) radio from selected MCA stations at the next scheduled broadcast and every 12 hours thereafter.

8.6.5 BOWL will require that no radio beacon or radar beacon operating in the Marine frequency bands are installed or used during the construction and operation and maintenance of the Development without the prior written approval of the Office of Communications ("OfCom").

8.7 Other Notifications

8.7.1 This Section sets out other notifications that will be issued by BOWL and in line with the wind farm and OfTW Marine Licence conditions set out in Table 1.2.

Clyde Cruising Club- Sailing Directions

8.7.2 The Clyde Cruising Club has published Sailing Directions for Scottish waters since its inception in 1909. They publish the North & Northeast Scotland and Orkney Islands sailing direction, which covers the Scottish coast from Cape Wrath to Peterhead, including Inverness Firth and the entrance to the Caledonian Canal.

8.7.3 BOWL will, prior to Commencement of construction of the Development, ensure that the location of all wind turbines and OTMs is made available for inclusion in the Clyde Cruising Club Sailing Directions and Anchorages.

8.7.4 During construction and O&M, the Marine Coordination Centre will issue construction and major maintenance notifications to the Clyde Cruising Club.

8.7.5 The as-built locations will be available from the UKHO within 1 month of completion of the construction works, for inclusion into an amendment to the Sailing Direction.

Buckie Harbour Master

8.7.6 BOWL and their Key Contractors will consult with the Buckie Harbour Master where appropriate, who may wish to issue local warnings to alert those navigating in the vicinity to the presence of the OfTW installation works during the construction period.

9 Emergency Response

9.1 Introduction

9.1.1 This section sets out the key emergency and incident planning and reporting procedures.

9.2 Emergency Response Plan

9.2.1 BOWL have prepared an Emergency Response Plan (ERP) (LF000005-PLN-174) in accordance with SSE's Safety, Health and Environmental Management System. The ERP details the required emergency planning and response control measures to be implemented across the Construction and Operation phase of the BOWL Development by all BOWL Personnel and Key Contractors.

9.2.2 Procedures are set out in the ERP against a number of emergency scenarios to ensure the following provisions are in place in the event of an incident:

- Define how emergencies are reported from where they occur, the local action required, the involvement of the emergency services and what roles and responsibilities are taken up and by who;
- Explain how the different levels of command & control are carried out;
- Standardise the way that responses are carried out in the event of an emergency including emergency command centre facilities;
- Form a sound basis for training people (including contractors) within their level of command & control;
- Provide a constructive information tool to help people understand their role and responsibilities during an incident; and,
- Ensure compliance with safety, health and environmental legislation.

9.3 Emergency Response Cooperation Plan

9.3.1 BOWL have prepared and issued to MS-LOT/the Licensing Authority in consultation with the MCA, a full Emergency Response Cooperation Plan (ERCoP) (LF000005-PLN-187) for the Development (following the MCA template).

9.3.2 The Plan includes the following information:

- Emergency contact and quick reference information
- BOWL Development information including site location, coordinates and site control measures;
- Roles and responsibilities of BOWL in an emergency;
- BOWL contact information;

- Emergency response and emergency response team;
- Liaison arrangements and information exchange;
- Project design parameters relevant to emergency response;
- Construction activities;
- Search and Rescue (SAR) facilities and SAR response capabilities including cumulative capabilities;
- Medical advice and assistance;
- Firefighting, chemical hazards, trapped persons etc;
- Shore reception arrangements;
- Suspension/ termination of SAR action;
- Criminal action and accidents to persons;
- Media relations;
- Exercises;
- Unexploded ordnance and wreck materials located on or near to OREIs;
- Wreck or wreck materials;
- Counter pollution;
- Search Planning; and,
- Liaison

9.4 Marine Incident Reporting

9.4.1 In relation to environmental, SHE or pollution incidents, an incident reporting process is set out in the approved EMP which will be followed by all vessels and personnel. This sets out the reporting process to be followed and the roles and responsibilities in relation to incident reporting and management.

9.4.2 Matters relating to emergency response, including the reporting of any such incidents are set out in the ERCoP (see Section 9.3 above).

UK Marine Reporting Requirements

9.4.3 In addition, within UK waters, all vessels are required to report any incidents related to navigational safety by the quickest means possible to the Marine Accident and Investigation Branch (MAIB). The MAIB has a dedicated reporting line for this purposes +44 (0)23 8023 2527. This line is staffed 24 hours a day. This includes all accidents and serious injuries.

9.4.4 Information required shall include:

- Details of the incident.
- Vessel details.
- Details of personnel involved.

10 Compliance with Marine Guidance Note 543

10.1.1 The S36 and OfTW Marine Licence conditions set out in Table 1.1 require BOWL to demonstrate that this NSP has adequately addressed all of the recommendations of the current Marine Guidance Note 543 (MGN543), and its annexes that may be appropriate to the Development (or any other relevant document which may supersede said guidance).

10.1.2 The latest version of MGN543 (MCA, 2008) has therefore been reviewed and all appropriate recommendations (at this pre-construction stage of the development) have been identified. In each case, it has been indicated where each of these recommendations has been addressed within the NSP (or other relevant consent plan) for the Beatrice Offshore Wind Farm.

10.1.3 It should be noted that some recommendations within MGN543 in relation to evacuation (winching) from turbines are not relevant to the NSP & LMP and therefore no cross reference is provided.

10.1.4 The results of this audit of the requirements of MGN543 is set out in Appendix D.

11 Compliance with the Application, ES and SEIS

11.1 Introduction

11.1.1 In addition to the conditions presented in Table 1.1, Condition 8 of the S36 Consent states:

The Development [Wind Farm] must be constructed and operated in accordance with the terms of the Application and related documents, including the accompanying ES, the SEIS and Annex 1 of this letter, except in so far as amended by the terms of this section 36 consent.

11.1.2 Sections 11.2 and 11.3 set out information from the ES/SEIS with regard to the delivery of the stated navigation safety-related mitigation.

11.2 Delivery of Mitigation Proposed in the ES/SEIS

11.2.1 The ES and SEIS detailed a number of mitigation commitments specific to the design of the Development. Measures relevant navigational safety are presented in full in Appendix B, which also identifies where each commitment has been addressed within the NSP or within other BOWL Consent Plans where appropriate.

12 References

Guidance

BEIS (2007), Guidance Notes - Applying for Safety Zones Around Offshore Renewable Energy Installations;

Health and Safety Executive (HSE) (2015) Guidance on The Construction (Design and Management) Regulations 2015 L153.

HSE (2011), A Quick Guide to Health and Safety in Ports, INDG 446.

International Association of Marine Aids to Navigation and Lighthouses (IALA) (20014), Recommendations 0-139 (The Marking of Man-Made Offshore Structures, Edition 2).

Maritime and Coastguard Agency (MCA) (2016), Marine Guidance Note (MGN) 543: Offshore renewable energy installations (OREIs): guidance on UK navigational practice, safety and emergency response. Available online: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/502021/MGN_543.pdf [accessed 19/09/16].

MCA (2008) MGN 372 M+F Offshore Renewable Energy Installations (OREIs) Guidance to Mariners Operating in the Vicinity of UK OREIs. Available online: https://www.gov.uk/government/publications/mgn-371-offshore-renewable-energy-installations-oreis

MCA (2014), Offshore Renewable Energy Installations, Emergency Response Cooperation Plans (ERCoP) for Construction and Operations Phase, and Requirements for Emergency Response and SAR Helicopter Operations, as updated 4th November 2014. Available online: https://www.gov.uk/government/publications/offshore-renewable-energy-installations-orei

Relevant Legislation

Energy Act 2004, Chapter 2, Section 95-97, Available online: http://www.legislation.gov.uk/ukpga/2004/20/contents (accessed 20/01/15).

Health and Safety at Work Act 1974

Health and Safety at Work etc. Act 1974 (Application outside Great Britain) Order 2013 implemented in the UK through Merchant Shipping Notices (MSN)

International Regulations for Preventing Collisions and Sea 1972 (COLREGS), as amended/

MCA (2002), Search and Rescue Framework for the United Kingdom of Great Britain and Northern Ireland;

Merchant Shipping Act 1995.

MSN 1781: The Merchant Shipping (Distress Signals & Prevention of Collisions) Regulations 1996.

Safety of Life at Sea (SOLAS) Convention, as implemented in the UK through The Merchant Shipping (Safety of Navigation) Regulations 2002.

STCW – International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1995, implemented through the Merchant Shipping (Training and Certification) Regulations 1997 (as amended).

The Construction (Design and Management) Regulations 2015 (the CDM Regulations).

The Electricity (Offshore Generating Stations) (Safety Zones) (Application Procedures and

Control of Access) Regulations 2007, Available online: http://www.legislation.gov.uk/uksi/2007/1948/contents/made (accessed 20/01/15).

The Pilotage Act 1987.

Appendix A: Legislation, Policy and Guidance

The following relevant legislation, policy and guidance regarding the safe navigation at sea is applicable to this NSP:

- United Nations Conventions on the Law of the Sea;
- International Regulations for Preventing Collisions and Sea 1972 (COLREGS);
- Safety of Life at Sea (SOLAS) Convention, as implemented in the UK through The Merchant Shipping (Safety of Navigation) Regulations 2002;
- International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1995, implemented through the Merchant Shipping (Training and Certification) Regulations 1997 (as amended);
- International Convention for the Prevention of Pollution from Ships (MARPOL) (1973/1978);
- Merchant Shipping Act (1995);
- The Construction (Design and Management) Regulations 2015 (the CDM Regulations);
- MCA (2008) MGN 371 M+F Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practices. Safety and Emergency Response Issues (including subsequent updates in 2014);
- MCA (2008b) MGN 372 M+F Offshore Renewable Energy Installations (OREIs) Guidance to Mariners Operating in the Vicinity of UK OREIs;
- BEIS (2007), Guidance Notes - Applying for Safety Zones Around Offshore Renewable Energy Installations;
- MCA (2008), Search and Rescue Framework for the United Kingdom of Great Britain and Northern Ireland; and
- International Association of Marine Aids to Navigation and Lighthouses (IALA) Recommendations 0-139 (The Marking of Man-Made Offshore Structures, Edition 2) (IALA, 2013).

BOWL, BOWL's contractors and sub-contractors, and all vessel operators are required to comply with UK and international legislation relevant to their vessels flag state. The Development has been designed to comply with legislation and relevant guidance in relation to offshore navigational safety, and this NSP has been developed to be compliant with the legislation and relevant guidance.

Appendix B: ES and SEIS Commitments

Document	Chapter No.	Chapter	Details of commitment	Reference to Section in NSP
ES	7	Project Description	During all marine operations a relevant safety zone will be applied for the construction, commissioning and operational phases of the project.	Section 5.4 (construction) and Section 6.3 (operation)
ES	7	Project Description	Temporary safety zones will be marked with a navigation buoy at each corner of the zone. The zone will be subject to a Notice to Mariners' as a temporary construction site and off limits to third parties. The zones will be advertised using the proper channels and liaison will take place prior to implementation with the relevant local sea users and bodies, including the port authorities	Section 5.4 (construction safety zones) and Section 6.3 (operational safety zones) Section 5.3 (construction buoyage) Section 8 (Notices to Mariners)
ES	7	Project Description	Where necessary along the Offshore Transmission Works cable route, guard boats or standby boats will be employed to guard specific points. A vessel will also be nominated to monitor the safety zones and guard against any infringements	Section 5.4 (construction safety zones) and Section 5.3 (buoyage)
ES	7	Project Description	A 500 m (the maximum permissible under international law - UNCLOS) safety zone will be in place around each turbine during construction, major maintenance, possible extension and decommissioning	Section 5.4 (construction) and Section 6.3 (operation)
ES	7	Project Description	A Control Centre, part of the necessary O&M facilities, will have an Automatic Identification System (AIS), Radar coverage, and CCTV coverage, which will identify vessels with AIS transmitters entering into the safety zone during construction and commissioning activities. This will be in addition to visual observations by personnel on Wind Farm vessels or guard vessels working within and around the Wind Farm Site and OfTW corridor. Any vessel identified or observed to stray in to the safety zone will be contacted by a designated member of the crew of the Wind Farm or guard vessel.	Section 5.5 (construction management) and Section 6.4 (operational management)
ES	7	Project Description	If an operational safety zone is required, it will be subject to a Notice to Mariners' as a temporary construction site and off limits to third parties. The zones will be advertised using the proper channels and liaison will take place prior to implementation with the relevant local sea users and bodies, including the port authorities. Furthermore during	Section 6.3 (operation)

Document	Chapter No.	Chapter	Details of commitment	Reference to Section in NSP
			maintenance operations this would be extended to 500 m (the maximum permissible under international law) around the relevant structures.	
ES	7	Project Description	An AIS and CCTV from an onshore Control Centre will be in place to monitor vessel movements within the Wind Farm	Section 6.4
ES	16	Commercial Fisheries	The developer will apply for safety zones during the construction phase.	Section 5.4
ES	18	Shipping and Navigation	Safety Zones will be applied for in line with BEIS guidance.	Section 5.4 and Section 6.3
ES	18	Shipping and Navigation	Appropriate liaison will be undertaken to ensure information on the Wind Farm and special activities is circulated in Notices to Mariners, Navigation Information Broadcasts and other appropriate media.	Section 8
ES	18	Shipping and Navigation	The Wind farm and associated submarine inter-array cables will be charted by the UK Hydrographic Office (UKHO) in Admiralty Charts	Section 8
ES	18	Shipping and Navigation	An Emergency Response Co-operation Plan (ERCoP) for the Wind Farm (as per the MCA template), will be in place pre-construction	Section 9 provides a summary of the ERCoP submitted to MS-LOT.
ES	30	Other Issues	During construction and operation of the Wind Farm there will be ongoing liaison with the operators of all infrastructure in the Moray Firth. In particular, further consultation is required with Oil Operators in relation to exclusion zones around platforms	Section 5.5 (construction management) and Section 6.4 (operational management)
ES	30	Other Issues	During construction and operation BOWL will liaise with operators of Ports and Harbours in the Moray Firth to ensure BOWL are aware of any concerns and can act upon them	Section 5.6 (construction routes and entry/exit points) and Section 6.5 (operation routes and entry/exit points) Section 8 (notifications)
ES	30	Other Issues	During construction of the Wind Farm, safety zones will be in operation	Section 5.4
SEIS	3	EIA	Need to notify UK Hydrographic Office (UKHO) of turbine and met mast locations and heights pre-construction.	Section 8
SEIS	13	Shipping and Navigation	There will be continued dialogue within the MFOWDG throughout the development process to support the	Section 8 and see also the CFMS

Document	Chapter No.	Chapter	Details of commitment	Reference to Section in NSP
			effective management of cumulative and in combinations effects to navigation safety.	
SEIS	13	Shipping and Navigation	Further assessment of the use of operational safety zones will be carried out once detailed design of the OfTW has been completed. It is acknowledged that these will require full justification on grounds of navigational safety. If safety zones are not justified, the NRA would be updated to assess any changes in risk as a result of their removal.	Section 6.3
SEIS	13	Shipping and Navigation	The detailed Emergency Response Plans, which will be produced during the final design stage and submitted for approval prior to construction commencing, will reflect the requirements at the time of writing.	Section 9 provides a summary of the ERCoP submitted to MS-LOT and describes BOWL's Emergency Response Plan.
SEIS	13	Shipping and Navigation	500 m safety exclusion zone to be implemented during construction	Section 5.4
SEIS	15	Shipping and Navigation	Consideration of a requirement for 500 m safety zones around construction activities and a 50 m safety zone during the operational phase;	Section 5.4 (construction) and Section 6.3 (operation)
SEIS	15	Shipping and Navigation	An ERCoP for the Wind Farm will be put in place pre-construction.	Section 9 provides a summary of the ERCoP submitted to MS-LOT.
ES	28	Shipping and Navigation OfTW	A [Marine Coordination Centre] will monitor AIS and record the movements of ships around the export cable(s) as well as company vessels working at the cable route	Section 5.5 (construction management) and Section 6.2 & 6.4 (marine coordination and operational management)
ES	7	Project Description	A Control Centre, part of the necessary O&M facilities, will have an Automatic Identification System (AIS)	Section 5.5 (construction management) and Section 6.2 & 6.4 (marine coordination and operational management)
ES	7	Project Description	Radar coverage, and CCTV coverage, which will identify vessels with AIS facilities entering into the safety zone during construction and commissioning activities. This will be in addition to visual observations by personnel on Wind Farm vessels or guard vessels working within	Section 5.4 (construction safety zones) and Section 5.5 (management)

Document	Chapter No.	Chapter	Details of commitment	Reference to Section in NSP
			and around the Wind Farm Site and OfTW corridor. Any vessel identified or observed to stray in to the safety zone will be contacted by a designated member of the crew of the Wind Farm or guard vessel.	
ES	7	Project Description	A Control Centre will monitor AIS and non-AIS vessels by CCTV and record the movements of vessels around the Wind Farm as well as company vessels working at the site	Section 5.5 (construction management) and Section 6.4 (operational management)
ES	28	Shipping and Navigation OfTW	BOWL will use the draft template created by the MCA to formulate an emergency response plan and site Safety Management Systems, in consultation with the MCA	Section 9 provides a summary of the ERCoP submitted to MS-LOT
ES	28	Shipping and Navigation OfTW	The Safety Management System will include an incident/accident reporting system which will ensure that incidents and near misses to be recorded and reviewed to monitor the effectiveness of the risk control measures in place at the site	Section 9 provides a summary of the ERCoP submitted to MS-LOT

Appendix C: Local Notices to Mariners Distribution List

Organisation	Contact
Shetland MRCC	SAR.response@mcga.gov.uk
Banff Harbour Marina	roads@aberdeenshire.gov.uk
Buckie Fishery Office Clyde Cruising Club (as per S36)	fo.buckie@scotland.gsi.gov.uk
Moray Council Buckie Harbour	buckieharbour@moray.gov.uk
Clyde Cruising Club (as per S36)	office@clyde.org
Cromarty Firth Port Authority including Nigg	cfpa@cfpa.co.uk
Findhorn Marina	info@findhornmarina.com
Fraserburgh Fishery Office	fo.fraserburgh@scotland.gsi.gov.uk
Fraserburgh Harbour	andrew@fraserburgh-harbour.co.uk
Ithaca Energy (Jacky & Beatrice Oil Field Operator)	TBC
Kingfisher and KIS-ORCA	kingfisher@seafish.co.uk
Lossiemouth Marina	info@lossiemouthmarina.com
Macduff Harbour	roads@aberdeenshire.gov.uk
Ministry of Defence	TBC
MORL Developers	TBC
Nairn Harbour	nairn.harbourmaster@gmail.com
Northern Lighthouse Board	navigation@nlb.org.uk
Port of Inverness	hm@portofinverness.co.uk
Scottish Fishermen’s Federation	sff@sff.co.uk
Royal Yachting Association Scotland	admin@ryascotland.org.uk
Trinity House Navigational Directorate	Navigation.Directorate@thls.org

UK Hydrographic Offices	noticetomariners@ukho.gov.uk
Whitehills Marina	TBC
Wick Harbour Authority	malcolm.bremner@wickharbour.co.uk

Appendix D: MGN 543 Compliance Audit

MGN 543 Requirement	Where Addressed in NSP
Developers are responsible for ensuring that formally agreed variations in the co-ordinates of site perimeters and individual OREI structures are made available, on request, to interested parties at all project stages, including application for consent, development, array variation, operation and decommissioning…..For mariners' use, appropriate data should also be provided in latitude / longitude formats.	Section 8 - notifications The ERCoP (summarised in Section 9) also describes procedures for communication of OREI positions in the event of an emergency.
Recommended minimum safe (air) clearance between sea level conditions at Mean High Water Springs (MHWS) and wind turbines rotors are that they should be suitable for the vessel types identified in the traffic survey but generally not less than 22 metres, unless developers are able to offer proof that no risk exists to any vessel type with air drafts greater than the requested minimum.	Section 4.2 (project details) (and see also the DSLP)
It is considered necessary that a hydrographic survey of the site and its immediate environs extending to 500m outside the development area to be undertaken at each of the following stages: a) As part of the consent application b) Following installation of the development. c) On a pre-established periodicity during the life of the development (with survey frequency being determined by, amongst other considerations, the mobility of the seabed). d) Following decommissioning of all or part of the development.	Surveys of the seabed required by the S36 and Marine Licence conditions following construction will be set out in the Project Environmental Management Plan (PEMP)
If the establishment of the development will alter maritime traffic patterns by necessitating vessels to avoid the area by seeking an alternative passage over areas last surveyed on UK Hydrographic Office nautical charts prior to 1986, it may be considered necessary that a hydrographic survey of these alternative passages and their immediate environs extending to 500m outside the alternative passages be undertaken.	Not applicable
All hydrographic surveys listed above should fulfil the requirements of International Hydrographic Organisation (IHO) Order 1 standard multibeam bathymetry in every respect, with final data being supplied as a digital density data set, and erroneous soundings flagged as deleted but included in the data set. A full report detailing survey methodology and equipment should accompany the surveys. On completion of each survey,	The methodologies to be applied to post-construction surveys will be set out in the PEMP

results should be forwarded to the Hydrography Manager (MCA).	
It is recommended that, where possible, individual OREI marking should conform to a "spread sheet" layout, i.e. lettered on the horizontal axis, and numbered on the vertical axis. The detail of this will depend on the shape, geographical orientation and potential future expansion of each OREI development. MCA will advise on the specific requirements for each development.	The LMP provides details of the identification markings (which have been signed off in consultation with the MCA).
Annex 5. **1. Design Requirements.**	
All wind turbine generators and other OREI individual structures will each be marked with a clearly visible unique identification characters which can be seen by both vessels at sea level and aircraft (helicopters and fixed wing) from above.	The LMP sets out the proposed marking including identification characters.
The identification characters shall each be illuminated by a low-intensity light visible from a vessel thus enabling the structure to be detected at a suitable distance to avoid a collision with it. For offshore wind farms, the size of the identification characters in combination with the lighting should be such that, under normal conditions of visibility and all known tidal conditions, they are clearly readable by an observer, stationed 3 metres above sea levels, and at a distance of a least 150 metres from the turbine…It is recommended that lighting for this purpose be hooded or baffled so as to avoid unnecessary light pollution or confusion with navigation marks. (Precise dimensions to be determined by the height of lights and necessary range of visibility of the identification numbers).	The LMP sets out the proposed marking including identification characters.
For aviation purposes, OREI structures should be marked with hazard warning lighting in accordance with CAA guidance and also with unique identification numbers (with illumination controlled from the site control centre and activated 'as required') on the upper works of the OREI structure so that aircraft can identify each installation from a height of 500 feet (150 metres) above the highest part of the OREI structure	The LMP sets out the requirements for aviation marking and lighting.
Wind Turbine Generators (WTG) shall have high contrast markings (dots or stripes) placed at 10 metre intervals on both sides of the blades to provide SAR helicopter pilots with a hover-reference point.	The LMP sets out the requirements for Blade Hover Reference Marking.
All OREI generators and transmission systems should be equipped with control mechanisms that can be operated from the OREI Central Control Room or through a single contact point.	The ERCoP (summarised in Section 9 of this NSP) sets out the marine coordination centres capabilities and liaison

	agreements between BOWL and the coastguard, including contact details of the marine co-ordination centre which shall act as the single point of contact.
Throughout the design process for an OREI, appropriate assessments and methods for safe shutdown should be established and agreed, through consultation with MCA's Navigation Safety Branch, Search and Rescue Branch and other emergency support services.	The ERCoP (summarised in Section 9 of this NSP) sets out liaison agreements between BOWL and the coastguard, including protocol (and ability) for safe shutdown.
The OREI control mechanisms should allow the Control Room, single contact point Operator to fix and maintain the position of WTG blades, nacelles and other appropriate OREI moving parts to configurations determined by the Maritime Rescue Co-ordination Centre (MRCC). This same Operator must be able to immediately effect the control of offshore substations and export cables.	The ERCoP (summarised in Section 9 of this NSP) will outline liaison agreements between BOWL and the coastguard and provide further detail on the ability of the control room manager to fix and maintain the position of WTGs and component parts.
Nacelle hatches and other OREI enclosed spaces in which personnel are working should be capable of being opened from the outside. This will allow rescuers (e.g. helicopter winch-man) to gain access to such spaces if the occupants are unable to assist and when sea-borne approach is not possible. These spaces may be secured when no site personnel are present. OREI access areas, nacelle roofs and landing platforms should also be fitted with clearly marked safe areas, railings, hand holds and/or strong points for the securing of safety harnesses.	The ERCoP (summarised in Section 9 of this NSP) sets out evacuation procedures from WTGs to be followed.
WTG access ladders, although designed for entry by trained personnel using specialised equipment and procedures for turbine maintenance in calm weather, could conceivably be used, in an emergency situation, to provide refuge on the turbine structure for distressed mariners. This scenario should therefore be considered when identifying the optimum position of such ladders and take into account the prevailing wind, wave and tidal conditions.	The ERCoP (summarised in Section 9 of this NSP) outlines evacuation procedures from WTGs to be followed including use of access ladders. Detailed design work on the wind turbine substructures (jackets) will take account of prevailing metocean conditions in designing the position of the access ladders.
1. Operational Requirements	
The Central Control Room, or mutually agreed single contact point, should be manned 24 hours a day.	Section 6.4 (Marine Coordination Centre) provides an overview of the of the

	operational marine coordination centre.
The Central Control Room operator, or mutually agreed single contact point, should have a chart indicating the GPS position and unique identification numbers of each of the WTGs in the wind farm or individual devices in other types of OREI.	The ERCoP (summarised in Section 9 of this NSP) outlines the detail of the marine coordination centre and its' commitment to have an appropriate chart with information as requested by the MCA.
All MRCCs will be advised of the contact telephone number of the Central Control Room, or single contact point (and vice versa).	The ERCoP (summarised in Section 9 of this NSP) provides contact details of the marine coordination centre.
All MRCCs will have a chart indicating the GPS position and unique identification number of each of the WTGs in all wind farms or all devices in other types of OREI.	The ERCoP (summarised in Section 9 of this NSP) outlines liaison agreements (and provision of appropriate resources) with all MRCCs.
All search and rescue helicopter bases will be supplied with an accurate chart of all the OREI and their GPS positions.	The ERCoP (summarised in Section 9 of this NSP) outlines liaison agreements (and provision of appropriate resources) with all SAR helibases.
The Civil Aviation Authority shall be supplied with accurate GPS positions of all OREI structures for civil aviation navigation charting purposes.	Section 8 (notification of coordinates to UKHO for aviation charting)
2. Operational Procedures	
Upon receiving a distress call or other emergency alert from a vessel which is concerned about a possible collision with a WTG or is already close to or within a wind farm, or when the MRCC receives a report that persons are in actual or possible danger in or near to a wind farm and search and rescue aircraft and/or rescue boats or craft are required to operate over or within the wind farm, the MRCC will establish the position of the vessel and the identification numbers of any WTGs which are visible to the vessel. This information will be passed immediately to the Central Control Room, or single contact point, by the MRCC. A similar procedure will be followed when vessels are close to or within other types of OREI site.	The ERCoP (summarised in Section 9 of this NSP) outlines liaison agreements between BOWL and the coastguard and provide further detail on SAR protocol.
The control room operator, or single contact point, should immediately initiate the shut-down procedure for those WTGs as	The ERCoP (summarised in Section 9 of this NSP) outlines

requested by the MRCC/SC, and maintain the WTG in the appropriate shut-down position, as requested by the MRCC, or as agreed with MCA Navigation Safety Branch or Search and Rescue Branch for that particular installation, until receiving notification from the MRCC that it is safe to restart the WTG.	liaison agreements between BOWL and the coastguard, including protocol (and ability) for safe shutdown.
Communication procedures should be tested satisfactorily at least twice a year. Shutdown and other procedures should be tested as and when mutually agreed with MCA.	The ERCoP (summarised in Section 9 of this NSP) outlines liaison agreements between BOWL and the coastguard, including the agreed periodicity for testing of communication procedures as well as SAR events.
3. SAR Helicopter Procedures / Requirements	
If winching is to take place from/to a WTG, the WTG blades will have to be feathered and the rotor brakes applied (where feasible blades should be pinned - perhaps before major works commence). The nacelle should be rotated so that the blades are at 90 degrees off the wind with the wind blowing on to the left side of the nacelle e.g. if wind is blowing from 270 degrees, the nacelle will need to be rotated to right so that the hub is facing 360 degrees.	The ERCoP (summarised in Section 9 of this NSP) outlines procedures to be followed during WTG shut down and winching events.
If winching is to take place to/from a nacelle, wherever possible wind farm personnel should be in the nacelle to assist the winchman.	The ERCoP (summarised in Section 9 of this NSP) outlines procedures to be followed during winching events.
In poor visibility or at night, any lighting on WTGs may be required to be switched on or off - at the discretion of the helicopter pilot.	The LMP sets out the requirements for aviation lighting.