SAFETY ZONE APPLICATION

KINCARDINE OFFSHORE WINDFARM PROJECT

Prepared	Checked	Reviewed	Approved	Approved
28/09/2020	28/09/2020	28/09/2020	28/09/2020	28/09/2020
Organisation: KOWL	Organisation: KOWL	Organisation: KOWL	Organisation: KOWL	Organisation: KOWL
Name / signature: Chloe Fraser [redacted]	Name / signature: John Giles [redacted]	Name / signature: Charlie Whyte [redacted]	Name / signature: Alan West [redacted]	Name / signature: Catrin Fowden [redacted]

Revision History

Date	Rev. Status	Purpose of Issue*	Remarks	Initials
29/04/2020	IFO1	Application	Issued for Information	JG
18/05/2020	IFO2	Application	Comments incorporated	CF
28/09/2020	IFO3	Application	LMP Figure changed. MCA and SFF comments incorporated	CF

*Purpose of Issue: for information, for review, for approval

Detailed Change Log

Date	Rev. Status	References	Description of changes	Initials
29/04/2020	IFO1	-	First Revision	JG
18/05/2020	IFO2	-	Second Revision- dates updated regarding EPS and amendment of definition table	CF
28/09/2020	IFO3	-	Third revision- update and incorporate comments issued by the SFF and MCA. ErCoP link amended to REV C5	CF

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APPENDIX A - KOWL-DR-0001-015 - FIELD LAYOUT CONSENT AND WTG POSITION CHECK REV A4 ..... Error! Bookmark not defined.

ACRONYMS, ABBREVIATIONS AND DEFINITIONS

AIS	Automatic Identification System
AtoN	Aid to Navigation
ERCoP	Emergency Response and co-operation Plan
ES	Environmental Statement
HDD	Horizontal Directional Drilling
IALA	International Association of Marine Aids to Navigation
KOWL	Kincardine Offshore Wind Ltd
KOWL	Kincardine Offshore Windfarm Limited
LMP	Lighting and Marking Plan
LMP	Lighting and Marking Plan
MGN	Marine Guidance Note
MHWS	Mean High water Springs
MS-LOT	Marine Scotland Licensing and Operations Team
MW	MegaWatt
TBC	To be confirmed
UTM	Universal Transverse Mercator
WTG	Wind Turbine Generator

DEFINED TERMS

Term	**Description**
Kincardine Offshore Windfarm Limited	The legal body submitting the Safety Application
Kincardine Offshore Site	The area in which the Windfarm will be located. Section 36 Consents and associated Marine Licenses to develop and operate one generating station on the North-East coast.
Application	Supporting documents, including the Environmental Impact Assessment Report submitted to the Scottish ministers by KOWL on 13/2020/00
Company	Kincardine Offshore Windfarm Limited (SC475345)
Consent Conditions	The terms that require complete compliance by the Company under the Offshore Consents.
ES Report	Environmental Statement Report, dated 20/08/2018, submitted to the Scottish Ministers by KOWL

Inter-array Cable	The offshore cables connecting the wind turbines and OSPs together
Interconnector Cables	The offshore cables connecting the OSPs to one another
Marine Licences	Granted by the Scottish Ministers under the Marine Scotland Act 2010, the written consents for the construction works and deployment of objects in the Scottish Marine environment in relation to the Windfarm (05914/18/1)
Offshore Consent	The Section 36 Consent and the Marine Licences
Offshore Export Cable Corridor	The area within which the offshore export cables will be located
Project	The Kincardine Offshore Windfarm
Section 36 Consent	The written consent approved on 06/09/2018 by the Scottish Ministers under Section 36 of The Electricity Act 1989 to construct and operate the Wind Farm.
Wind Farm	Offshore wind turbines, foundations and inter-array cabling as assessed in the Application

EXECUTIVE SUMMARY

The following Safety Zone Application has been prepared to provide Marine Scotland with information for the development and use of safety zones within the Kincardine Offshore Windfarm. The following Safety Application summarises the types of safety zone required by KOWL and provides a full summary of the various infrastructure and construction undertaken whilst safety zones are implemented.

1. INTRODUCTION

1.1 Purpose of the Document

The Section 36 variation dated the 6th of September 2018 issued by the Marine Scotland Licencing Operation Team (MS-LOT) there is a requirement under condition 16 for the Kincardine Offshore Wind Ltd (KOWL) to apply for Safety Zones.

This document is the Application for the Safety Zones for the Kincardine Offshore Windfarm. The document is based on the requirements of Statutory Instrument 2007 No. 1948 – Electricity.

1.2 Scope of the Document

The scope of this is to provide the information defined in Part 2 of the SI 2007 N0. 1948 Part 2 in support of the Application for Safety Zones.

Figure 1 – Windfloat (2MW) on site

2. PROJECT OVERVIEW

2.1 Summary

The Project is considered a commercial demonstrator site which will utilise floating foundation technology and will be one of the world's first array of floating wind turbines. It has been included within the Survey, Deploy and Monitoring scheme for offshore renewable systems (similar to wave and tidal devices).

The Project is located south-east of Aberdeen approximately 8nm (15km) from the Scottish coastline in a location that provides suitable water depth for a floating offshore wind demonstrator development (approximately 60-80m).

The offshore part of the project is split into the following areas: (see Figure 2)

- The Development Area – the wind farm area including the Wind Turbine Generators (WTG) and inter-array cables.
- The Offshore Export Cable Corridor – the area within which the export cables will be laid, from the perimeter of the Development Area to the onshore area at Mean High Water Spring (MHWS).

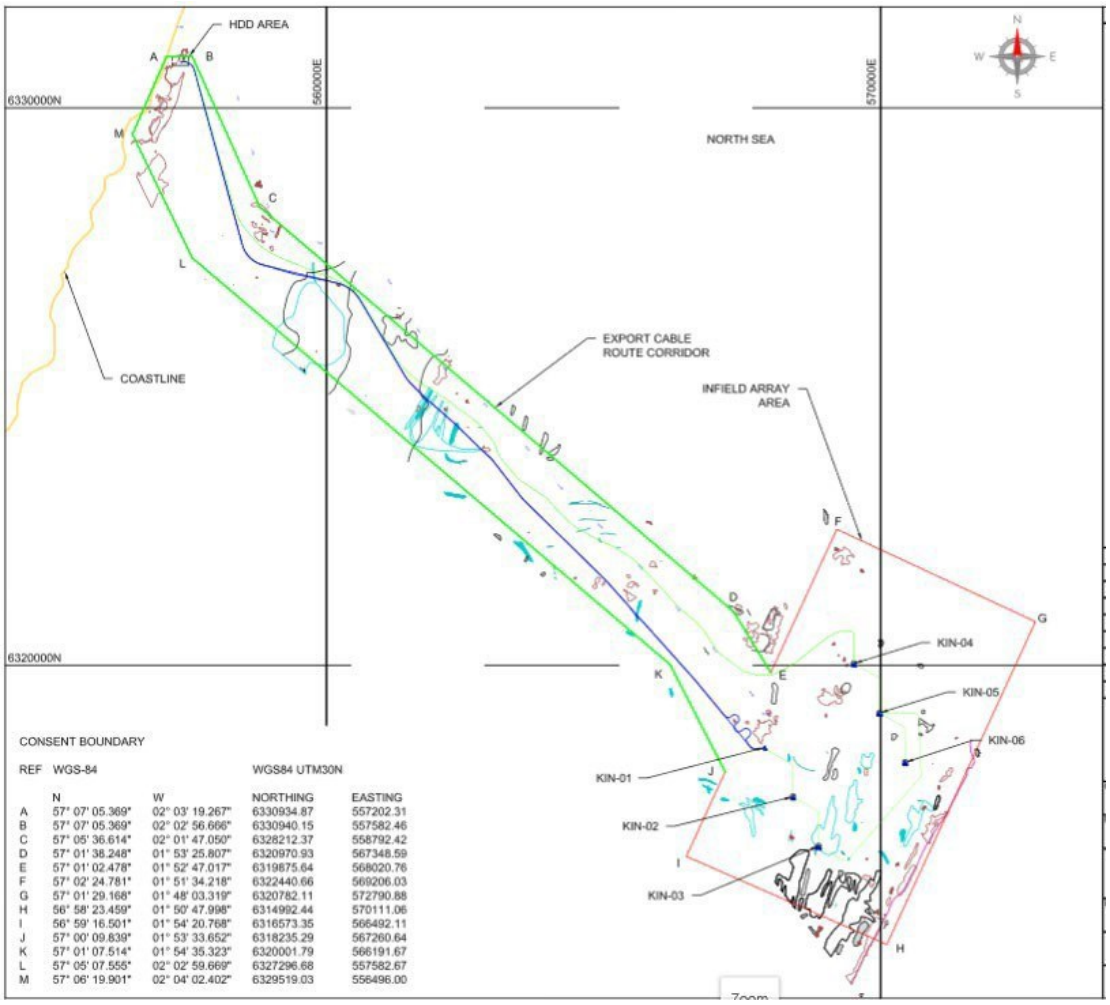

Figure 2 –Windfarm – Layout (from KOWL-DR-0001-015 RevA4 in Appendix A)

2.2 Turbine Locations

The project consists of 6 locations named as defined in Table 2-1.

Table 2-1 Turbine Designations

WTG Names
KIN-01
KIN-02
KIN-03
KIN-04
KIN-05
KIN-06

The position of the locations ‘KIN-01’ through to ‘KIN-06’ together with the key project boundaries are detailed in Appendix A - KOWL-DR-0001-015 - Field Layout Consent and WTG Position Check Rev A4.

This drawing is a controlled document and shall form the approved source for all coordinates in both UTM and Latitude/Longitude positions.

The locations are the centre of the turbine column.

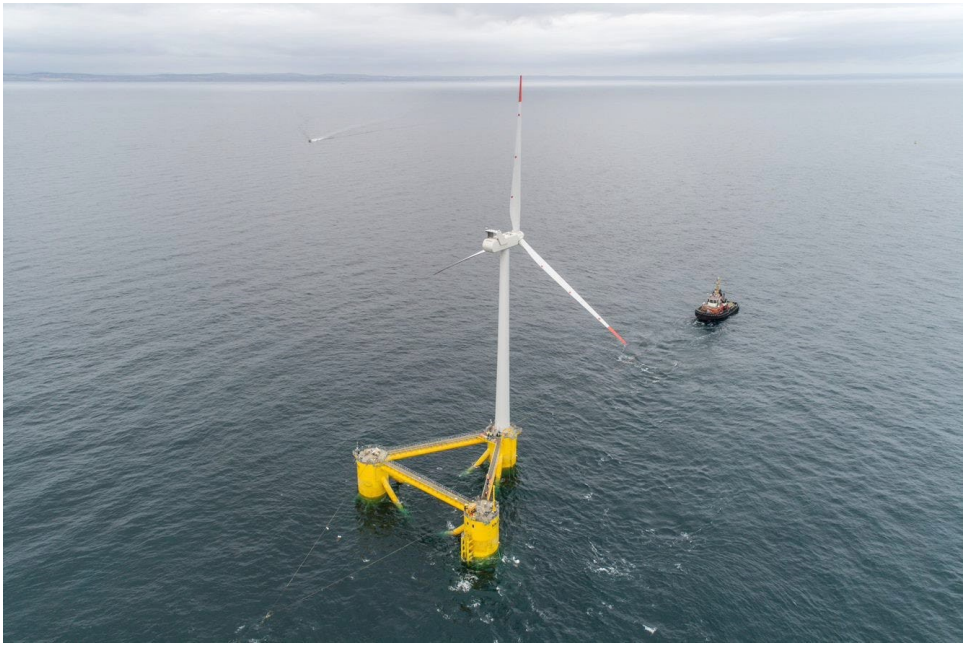

Figure 3 – Windfloat (KIN-01) being installed on site

2.3 Principal Components

The maximum generating capacity of the windfarm is capped at 50MW.

The Project consists of the following offshore components:

- 1 x 2MW WTG (currently in operation)
- 5 x 9.5MW WTGs (to be installed 2020)
- 5 x 33kv inter-array cables (to be installed 2020)
- 2 x export cables (one currently installed)
- All turbine substructures are the semi-submersible Windfloat™ design.

There is no offshore sub-station.

2.4 Installed Components

The onshore sub-station has been completed.

The first deployment was a 2MW WTG and associated substructure (Figure 3), anchors and mooring lines in 2018 on location 'KIN-01'. One export cable was also installed, through a Horizontal Directional Drilling (HDD) hole from landfall to circa 20m water depth and then along the export cable corridor to 'KIN-01' location.

2.5 Project Design Life

The design life for the windfarm is 25 years.

2.6 Construction Programme Overview

The construction of the project is anticipated to occur in two 'Tranches' in-line with the Programme outlined in the document ''Construction Programme'', KOWL-REP-0004-001.

3. SAFETY ZONES

3.1 General

The Safety Zones that are requested are for the Construction, Operation, Major Maintenance and Decommissioning phases of the project.

	Construction	Pre-commissioning	Operations	Major Maintenance	Decommissioning
No Safety Zone	There will be no safety zone during the following activities:- - Towing operations - Cable installation - Mooring installation	Once the turbine is commissioned and there are no vessels present	No safety zone		There will be no safety zone during the following activities:- - Towing operations - Cable removal - Mooring removal
50m Safety Zone		During pre-commissioning operations			
500m Safety Zone	During hook-up operations of the turbine (from when connected to the first mooring) and when there is a construction vessel stationed at the structure			During maintenance operations and when there is a construction vessel stationed at the structure	During decommissioning operations of the turbine (up to the point where moorings are disconnected) and when there is a construction vessel stationed at the structure

3.2 Construction Phase

The construction work at the offshore site consists of the following works: -

- Mooring pre-lay for all turbines
- Towing and hook-up of the floating Wind Turbine Generators
- Cable installation from shore to KIN-04
- Inter-array cable installation
- Removal of existing turbine at KIN-01 location and (subject to approval by MS-LOT) re-installation at KIN-06 location (Unit will be re-named KIN-06)
- Commissioning

The works are planned to occur during the summer and early autumn of 2020, commencing during July for three months.

During the construction phase it is proposed that there is a 500m radius Safety Zone around each turbine location as illustrated in figure 4 and in accordance with the conditions in the table in Section 3.1.

KOWL will issue Notice to Mariners prior to the commencement of construction or major maintenance activities and will clearly state the locations and nature of the activity.

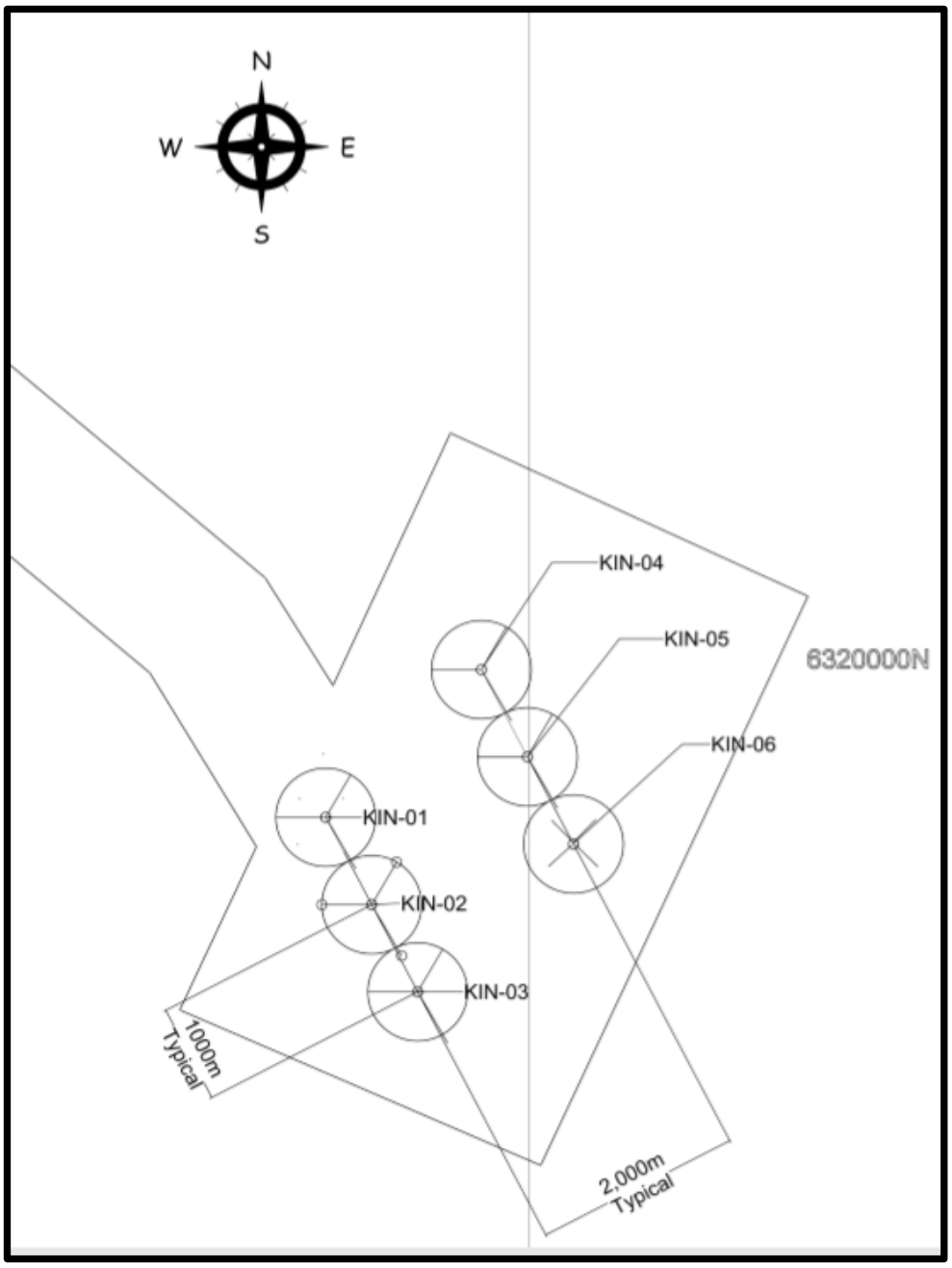

Figure 4 – Safety Zones during construction – 500m radius (reference KOWL-DR-0001-015 RevA4 in Appendix A)

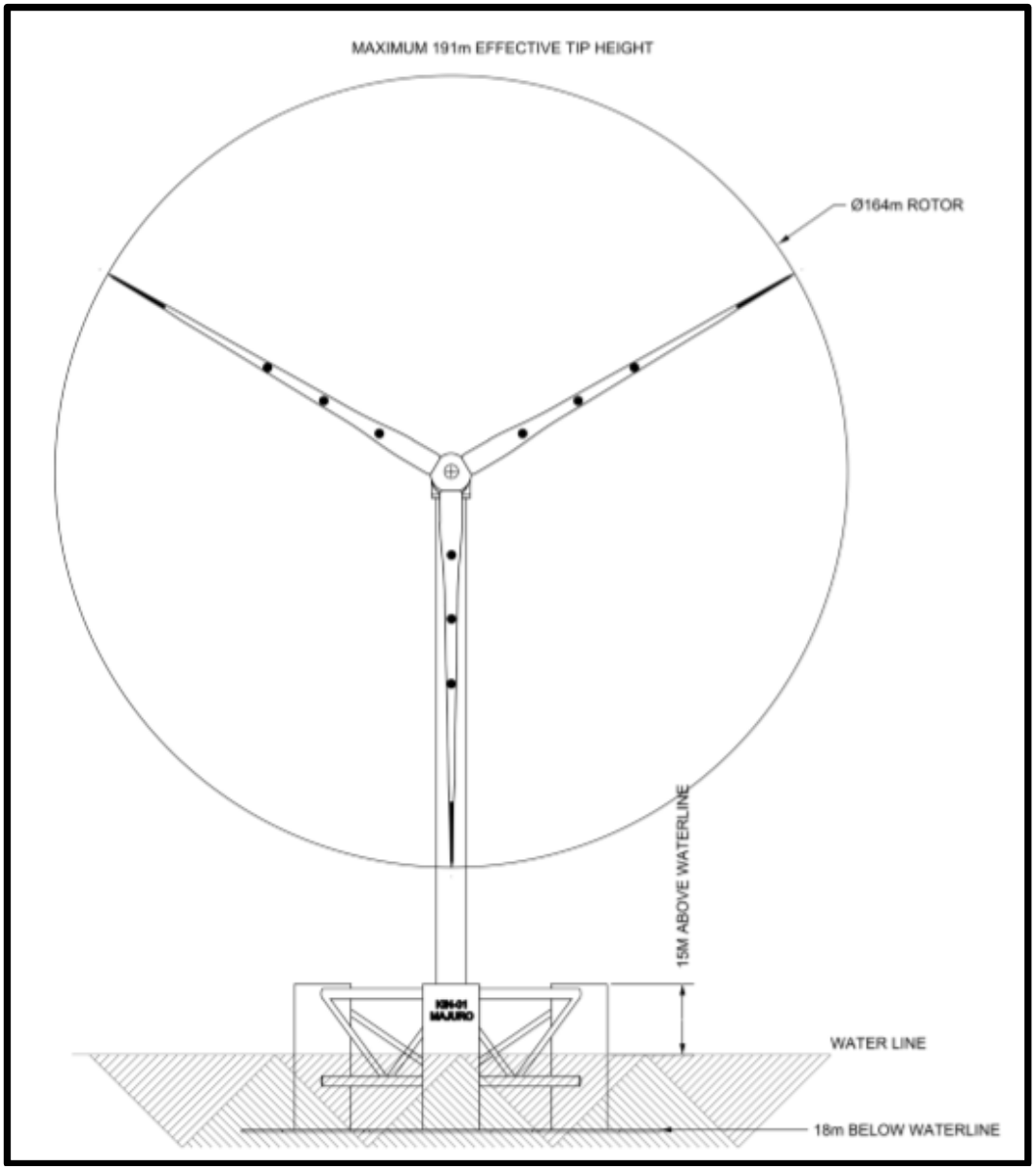

Figure 5- WTG installation visibility above and below the water line
(reference KOWL-DR-0001-017 WTG elevation)

3.3 Normal Operation – Operations and Maintenance

During normal operations there will be no safety zone - in accordance with the conditions in the table in Section 3.1.

3.4 Major Maintenance

In the event of the requirement for major maintenance it is proposed that the area around the affected turbine has a safety zone extending to a 500m radius and in accordance with the conditions in the table in Section 3.1.

3.5 Decommissioning

During decommissioning it is proposed that there is a 500m safety zone around each turbine location as shown in Figure 4 and in accordance with the conditions in the table in Section 3.1.
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4. SHIPPING TRAFFIC SURVEY

During the application for consent the Environmental Statement included an extensive section on Maritime Navigation. This is in Section 9 of the ES – Pages 409 to 465 inclusive. A link to the Environmental Statement is provided below.

https://pilot-renewables.com/wordpress/wp-content/uploads/2020/03/KOWL_EnvironmentalStatement_Issued_v2.pdf

The requirements of the ES will be complied with as a condition of the S36 consent and Marine Licence.

5. ACTIONS THAT WILL BE IMPLEMENTED

5.1 Lighting and Marking

The Wind Turbine Generators will have lighting and marking in compliance with the approved Lighting and Marking Plan (LMP). A link to the plan is provided below.

https://pilot-renewables.com/wordpress/wp-content/uploads/2020/07/KOWL-LMP-Rev-C5-signed.pdf

Figure 5 illustrated how the floating Wind Turbine Generators will be marked and lit.

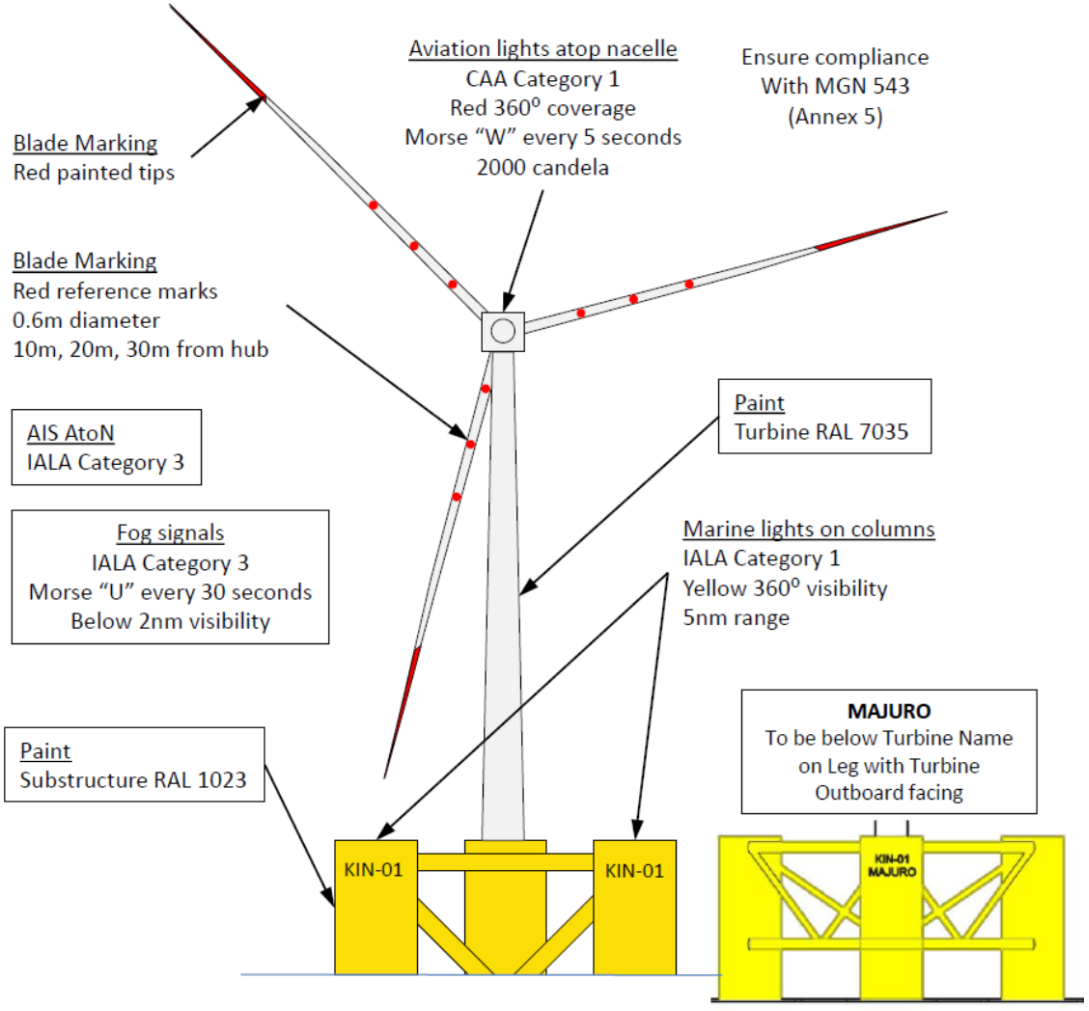


Figure 6 - Lighting and Marking Summary – (reference the Lighting and Marking Plan KOWL-PL-0004-001 Rev C5)

During construction the anchor lines will be pre-installed prior to the arrival of the floating wind turbine. During this period the anchor lines will have buoys locating the ends of their lines near the planned turbine location. A guard vessel will be in place to warn other shipping of the hazard during this period. The periods between the anchor line installation and hook-up to the wind turbine generator will be short (estimated maximum 4 weeks).

5.2 ERCoP

There is an approved ERCoP for the KOWL Project. A link to the ErCoP is provided below.

file:///C:/Users/cfraser/Documents/Licences%202020/KOWL-PL-0004-008%20Emergency%20Response%20Cooperation%20Plan%20C5%20(002).pdf

5.3 Promulgation of Information

Information will be promulgated as defined in the approved Navigational Safety Plan. A link to the Navigational Safety Plan is provided below.

https://pilot-renewables.com/wordpress/wp-content/uploads/2020/04/KOWL-PL-0004-007-Navigational-Safety-Plan-NSP-Rev-C2-signed.pdf

The Notice to Mariners will specifically state whether or not a safety zone applies to the activity.

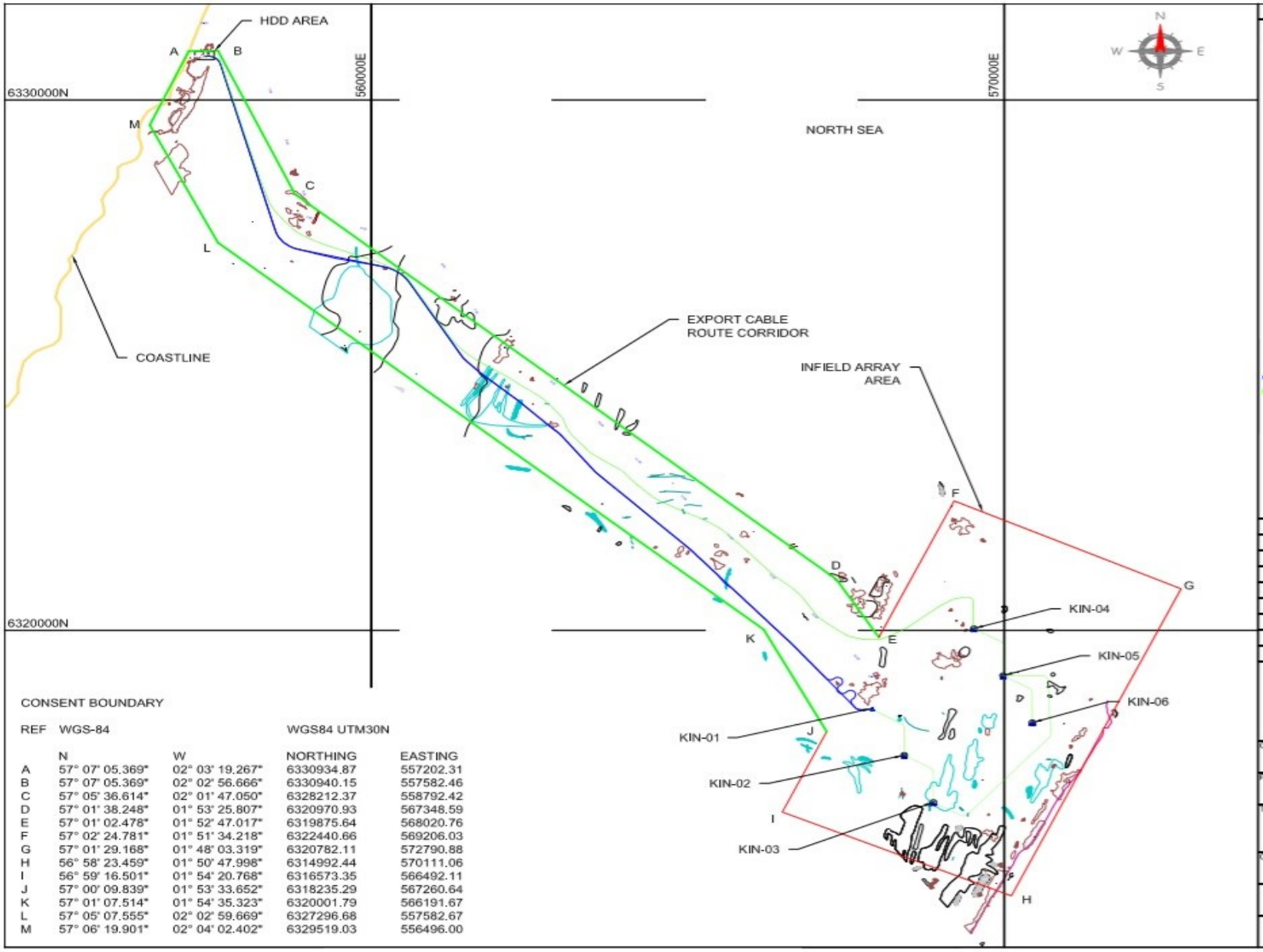
The promulgation includes the following:

- Notices to Mariners
- Kingfisher Bulletins
- UK Hydrographic Charts
- Radio Navigational Warnings
- Contact with Fishermen
- Notices to Airmen

6. MONITORING OF THE SAFETY ZONE

During Construction, Operations, Major Maintenance and De-commissioning the marine crews on the vessels will monitor other vessels and activities within the windfarm exclusion zones. There will not be a dedicated vessel for monitoring activities within the exclusion zones at times when there are no activities within the windfarm.

APPENDIX A - KOWL-DR-0001-015 - FIELD LAYOUT CONSENT AND WTG POSITION CHECK REV A4



CONSENT BOUNDARY

REF	WGS-84		WGS84 UTM30N	
	N	W	NORTHING	EASTING
A	57° 07' 05.369"	02° 03' 19.267"	6330934.87	557202.31
B	57° 07' 05.369"	02° 02' 56.666"	6330940.15	557582.46
C	57° 05' 36.614"	02° 01' 47.050"	6328212.37	558792.42
D	57° 01' 38.248"	01° 53' 25.807"	6320970.93	567348.59
E	57° 01' 02.478"	01° 52' 47.017"	6319875.64	568020.76
F	57° 02' 24.781"	01° 51' 34.218"	6322440.66	569206.03
G	57° 01' 29.168"	01° 48' 03.319"	6320782.11	572790.88
H	56° 58' 23.459"	01° 50' 47.998"	6314992.44	570111.06
I	56° 59' 16.501"	01° 54' 20.768"	6316573.35	566492.11
J	57° 00' 09.839"	01° 53' 33.652"	6318235.29	567260.64
K	57° 01' 07.514"	01° 54' 35.323"	6320001.79	566191.67
L	57° 05' 07.555"	02° 02' 59.669"	6327296.68	557582.67
M	57° 06' 19.901"	02° 04' 02.402"	6329519.03	556496.00

LEGEND

PLANNED TURBINE LOCATIONS

REF	WGS-84	
	N	W
KIN-01*	57° 00' 19.095"	01° 52' 52.181"
KIN-02	56° 59' 50.109"	01° 52' 25.710"
KIN-03	56° 59' 21.214"	01° 51' 59.269"
KIN-04	57° 01' 06.828"	01° 51' 18.166"
KIN-05	57° 00' 37.897"	01° 50' 51.666"
KIN-06*	57° 00' 08.931"	01° 50' 25.179"

* CURRENT 2MW TURBINE AT KIN-01 LOCATION WILL BE REMOVED AND REDEPLOYED AT KIN-06 LOCATION

REF	WGS84 UTM30N	
	NORTHINGS	EASTINGS
KIN-01	6318532.87	567955.65
KIN-02	6317645.51	568416.70
KIN-03	6316758.16	568878.75
KIN-04	6320034.94	569517.86
KIN-05	6319147.58	569978.91
KIN-06	6318260.23	570440.96

EXISTING EXPORT CABLE ROUTE
PROPOSED 2ND EXPORT CABLE ROUTE

REV	DESCRIPTION	DRN	CKD	APP	DATE
A4	ISSUED FOR COMMENT	JD	JG	AW	03/04/2019
A3	ISSUED FOR COMMENT	JD	JG	AW	01/04/2019
A2	ISSUED FOR COMMENT	JD	JG	AW	29/01/2019
A1	ISSUED FOR COMMENT	GB	JG	AW	28/01/2019

KOWL

CLIENT: KINCARDINE OFFSHORE WINDFARM LIMITED

PROJECT: KINCARDINE OFFSHORE WINDFARM PROJECT

TITLE: FIELD LAYOUT CONSENT AND WTG POSITION CHECK

CLIENT DRAWING NUMBER | SHEET: 1 OF 1 | SHEET SIZE: A3

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