



Appendix 11.3

MGN543 Checklist

Anatec Ltd.

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This appendix to Chapter 11: Shipping and Navigation provides a completed MGN 543 checklist for the Neart na Gaoithe Offshore Wind Farm.

Table 1: MGN 543 (M+F) Safety of Navigation: Offshore Renewable Energy Installations – Guidance on UK Navigational Practice, Safety and Emergency Response

Issue: OREI Response	Yes/No	Comments
Annex 1: Considerations on Site Position, Structures and Safety Zones		
<p>1. Site and Installation Co-ordinates: Developers are responsible for ensuring that formally agreed co-ordinates and subsequent variations of site perimeters and individual OREI structures are made available, on request, to interested parties at relevant project stages, including application for consent, development, array variation, operation and decommissioning. This should be supplied as authoritative Geographical Information System (GIS) data, preferably in Environmental Systems Research Institute (ESRI) format. Metadata should facilitate the identification of the data creator, its date and purpose, and the geodetic datum used. For mariners' use, appropriate data should also be provided with latitude and longitude coordinates in WGS84 (ETRS89) datum.</p>		
<p>2. Traffic Survey – includes:</p>		
All vessel types	✓	The marine traffic survey validation (Appendix 11.2) covers all vessel types broadcasting via AIS. Non AIS vessels are accounted for via radar data recorded in the original marine traffic survey (Section 8 of the NRA, Appendix 11.1). This approach has been agreed with the MCA.
At least 28 days duration, within either 12 or 24 months prior to submission of the Environmental Statement	✓	The marine traffic survey data presented in Appendix 11.2 comprised 28 days of data, and was collected during 2016, within 24 months of submission of the EIA Report. As agreed with the MCA, the validation data set is AIS only.
Multiple data sources	✓	As agreed with the MCA, an AIS based traffic validation survey (Appendix 11.2) demonstrated no significant changes in traffic since the original AIS and radar surveys. However, the original data, and additional RYA density data have also been considered within the EIA Report.
Seasonal variations	✓	The traffic validation survey (Appendix 11.2) accounted for seasonal variations (14 days summer collected in June 2016, and 14 days winter collected in December 2016).
MCA consultation	✓	The approach to marine traffic data used as input to the EIA Report was agreed with the MCA.
General Lighthouse Authority consultation	✓	The NLB did not raise any objections to the marine traffic methodology presented in the Scoping Report. Consultation responses are detailed in Table 11.2 of the EIA Report and in Appendix 11.1: NRA. This includes

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		responses to the Scoping Report which detailed the approach to marine traffic survey data.
Chamber of Shipping consultation	✓	The CoS did not raise any objections to the marine traffic methodology presented in the Scoping Report.
Recreational and fishing vessel organisations consultation	✓	Neither the RYA nor RYAS raised any objections to the marine traffic methodology presented in the Scoping Report. As stated in Table 11.2 of the EIA Report, the RYAS were content that if a traffic validation showed no significant changes in traffic, then the findings of the original NRA would remain valid. Consultation with fishing stakeholders is summarised in Chapter 10: Commercial Fisheries.
Port and navigation authorities consultation, as appropriate	✓	East Lothian Council responded as per Table 11.2 of the EIA Report. East Lothian Council are the duty holders for the Port of Seton and Cockenzie. Consultation responses are detailed in Table 11.2 of the EIA Report and in Appendix 11.1: NRA. This includes responses to the Scoping Report which detailed the approach to marine traffic survey data.
Assessment of the cumulative and individual effects of (as appropriate):		
i. Proposed OREI site relative to areas used by any type of marine craft.	✓	The EIA Report has considered impacts to all types of marine craft identified as requiring assessment based on the baseline assessment (Section 11.6) and Scoping Report (NnGOWL, 2017) within the impact assessment (Section 11.8).
ii. Numbers, types and sizes of vessels presently using such areas	✓	Numbers, types, and sizes of vessels were assessed within the original marine traffic survey data (Section 8 of Appendix 11.1), and validated through updated 2016 data (Appendix 11.2). This fed into the baseline assessment (Section 11.6), which was then used as input to the impact assessment (Section 11.8).
iii. Non-transit uses of the areas, e.g. fishing, day cruising of leisure craft, racing, aggregate dredging, etc.	✓	The baseline assessment (Section 11.6) identified non-transiting traffic requiring further assessment.

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iv. Whether these areas contain transit routes used by coastal or deep-draught vessels on passage.	✓	The marine traffic survey data (Appendix 11.2) identified coastal vessels, and included an analysis of vessel draught.
v. Alignment and proximity of the site relative to adjacent shipping lanes	✓	Routes which may be affected by the Project were identified within the original marine traffic survey data (Section 8 of Appendix 11.1), with the validation data (Appendix 11.2) re-assessing these routes. No new relevant routes were identified in the validation data.
vi. Whether the nearby area contains prescribed routeing schemes or precautionary areas	✓	The baseline assessment (Section 11.6) assessed navigational features in the area, including routeing schemes and precautionary areas (noting that no such features were identified).
vii. Whether the site lies on or near a prescribed or conventionally accepted separation zone between two opposing routes	✓	The baseline assessment (Section 11.6) assessed navigational features in the area, including separation zones (noting that no such features were identified).
viii. Proximity of the site to areas used for anchorage, safe haven, port approaches and pilot boarding or landing areas.	✓	The baseline assessment (Section 11.6) assessed navigational features in the area, including anchorages, safe havens and port approaches. No pilot boarding stations were identified within the study area.
ix. Whether the site lies within the jurisdiction of a port and/or navigation authority.	✓	The baseline assessment (Section 11.6) assessed navigational features in the area, including relevant port authorities.
x. Proximity of the site to existing fishing grounds, or to routes used by fishing vessels to such grounds.	✓	Baseline fishing activity is assessed in the traffic validation report (Appendix 11.2), with a summary provided in the baseline assessment (Section 11.6). Further details of fishing activity are presented in Chapter 10: Commercial Fisheries.
xi. Proximity of the site to offshore firing/bombing ranges and areas used for any marine military purposes.	✓	The baseline assessment (Section 11.6) assessed military practice areas within the study area. Further information is provided in Chapter 12: Military and Aviation, and in the Scoping Report.
xii. Proximity of the site to existing or proposed offshore oil / gas platform,	✓	The baseline assessment (Section 11.6) assessed chartered navigational features in the area, including

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marine aggregate dredging, marine archaeological sites or wrecks, Marine Protected Area or other exploration/exploitation sites		marine wrecks and MEHRAs to ensure there we no impacts on vessel routeing. No oil and gas platforms or dredging activity were identified within the study area.
xiii. Proximity of the site to existing or proposed OREI developments, in co-operation with other relevant developers, within each round of lease awards.	✓	A cumulative impact assessment was undertaken as part of the ES, as presented in Section 11.8.4.
xiv. Proximity of the site relative to any designated areas for the disposal of dredging spoil or other dumping ground	✓	The baseline assessment (Section 11.6) assessed navigational features in the area. No dredging disposal areas were identified, however a disused ammunition dumping ground was present within the study area.
xv. Proximity of the site to aids to navigation and/or Vessel Traffic Services (VTS) in or adjacent to the area and any impact thereon.	✓	The baseline assessment (Section 11.6) assessed navigational features in the area, including the pre-existing AtoNs and VTS.
xvi. Researched opinion using computer simulation techniques with respect to the displacement of traffic and, in particular, the creation of 'choke points' in areas of high traffic density and nearby or consented OREI sites not yet constructed.	✓	Software modelling was used to estimate the impact of the Offshore Wind Farm on vessel to vessel collision rates (as summarised in Section 13 of Appendix 11.1).
xvii. With reference to xvi. above, the number and type of incidents to vessels which have taken place in or near to the proposed site of the OREI to assess the likelihood of such events in the future and the potential impact of such a situation.	✓	Historic RNLI and MAIB data was used to assess the incident baseline within the study area, as summarised in Sections 11.6.1.1.6 and 11.8.2.1.1 of the EIA Report.
3. OREI Structures – the following should be determined:		
a. Whether any feature of the OREI, including auxiliary platforms outside the main generator site, mooring and anchoring systems, inter-device and export cabling could pose any type of difficulty or danger to vessels underway, performing normal operations, including fishing, anchoring and emergency response.	✓	Displacement impacts associated with the surface structures in the Wind Farm Area have been assessed in the impact assessment (Section 11.8). Impacts to emergency response and impacts associated with the Offshore Export Cables were scoped out, as per the Scoping Report (NnGOWL, 2017), and as agreed with the MCA.
b. Clearances of wind turbine blades above the sea surface are <i>not less than 22 metres</i> above MHWS.	✓	As per embedded mitigation listed in Section 11.7.1, there will be more than 22 metres (m) blade clearance above MHWS as the blade clearance will be a minimum of 35 m

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		above LAT (which is equivalent to approximately 30 m above MHWS).
c. Underwater devices		
i. changes to charted depth	✓	As per Section 11.7.2, a Cable Plan will be prepared prior to construction. This will include details of cable protection, and an assessment of under keel clearance and any notable changes to charted water depths.
ii. maximum height above seabed	✓	
iii. Under Keel Clearance	✓	
d. The burial depth of cabling and changes to charted depths associated with any protection measures.	✓	As per Section 11.7.2, a Cable Plan will be prepared prior to construction. This will include a burial plan, and any anticipated changes to water depths arising from cable protection.
4. Assessment of Access to and Navigation Within, or Close to, an OREI		
To determine the extent to which navigation would be feasible within the OREI site itself by assessing whether:		
a. Navigation within or close to the site would be safe:		
i. by all vessels, or		The impact assessment (Section 11.8) has assumed commercial vessels will not enter the Wind Farm Area, whereas fishing vessels or recreational vessels may still enter, based on experience gained from other wind farm projects. Collision and allision modelling (Section 13 of Appendix 11.1) was undertaken using localised weather and tidal data.
ii. by specified vessel types, operations and/or sizes.	✓	
iii. in all directions or areas, or	✓	
iv. in specified directions or areas.	✓	
v. in specified tidal, weather or other conditions	✓	
b. Navigation in and/or near the site should be:		
i. prohibited by specified vessels types, operations and/or sizes.	✓	As per embedded mitigation (Section 11.7.1), 500m safety zones will be applied for surrounding any structure where construction work is ongoing, or where major maintenance work is underway during the operational phase. Additionally, 50m safety zones will be applied for around partially completed structures where work is not active, and around completed structures prior to commissioning. All vessels not associated with the Project will be prohibited from entering any active safety zones. Apart from these safety zones, vessels will be free to transit the Wind Farm Area, noting that it is assumed that all vessels will take the charted presence of the Offshore Wind Farm (including buoys, cables, and structures) and the associated recommended safe passing distances into
i. prohibited in respect of specific activities,	✓	
ii. prohibited in all areas or directions, or	✓	
iii. prohibited in specified areas or directions, or	✓	

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iv. prohibited in specified tidal or weather conditions, or simply recommended to be avoided	✓	account when navigating, or engaged in other marine activities (e.g. anchoring or fishing). Information regarding recommended safe passing distances will be promulgated via Notice to Mariners, however these will not restrict navigation.
c. Exclusion from the site could cause navigational, safety or routeing problems for vessels operating in the area e.g. by preventing vessels from responding to calls for assistance from persons in distress	✓	Impacts on emergency response were scoped out within the Scoping Report (NnGOWL, 2017).
d. Relevant information concerning a decision to seek a safety zone for a particular site during any point in its construction, extension, operation or decommissioning should be specified in the Environmental Statement accompanying the development application	✓	As per embedded mitigation (Section 11.7.1), 500m safety zones will be applied for surrounding any structure where construction work is ongoing, or where major maintenance work is underway during the operational phase. Additionally, 50m safety zones will be applied for around partially completed structures where work is not active, and around completed structures prior to commissioning.

Annex 2: Navigation, collision avoidance and communications

1. The Effect of Tides and Tidal Streams: It should be determined whether:

a. Current maritime traffic flows and operations in the general area are affected by the depth of water in which the proposed installation is situated at various states of the tide i.e. whether the installation could pose problems at high water which do not exist at low water conditions, and vice versa.	✓	Tidal data for the area is assessed within the NRA (Section 6.9 of Appendix 11.1). The marine traffic validation data (Appendix 11.2) was collected to account for seasonal (and therefore tidal) variations.
b. The set and rate of the tidal stream, at any state of the tide, has a significant effect on vessels in the area of the OREI site.	✓	Tidal data for the area is assessed within the NRA (Section 6.9 of Appendix 11.1). The drifting model (forming part of the allision modelling process undertaken in Section 13 of Appendix 11.1) takes tidal information into account.
c. The maximum rate tidal stream runs parallel to the major axis of the proposed site layout, and, if so, its effect.	✓	Tidal data for the area is assessed within the NRA (Section 6.9 of Appendix 11.1).
d. The set is across the major axis of the layout at any time, and, if so, at what rate.	✓	Tidal data for the area is assessed within the NRA (Section 6.9 of Appendix 11.1).
e. In general, whether engine failure or other circumstance could cause vessels to be set into danger by the tidal stream.	✓	The drifting model (forming part of the allision modelling process undertaken in Section 13 of Appendix 11.1) assesses the risk of engine breakdown leading to allision.

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f. The structures themselves could cause changes in the set and rate of the tidal stream.	✓	As stated in Section 19.3 of the NRA (Appendix 11.1), a specialist study indicated no such effect was anticipated.
g. The structures in the tidal stream could be such as to produce siltation, deposition of sediment or scouring, affecting navigable water depths in the wind farm area or adjacent to the area	✓	As stated in Section 19.5 of the NRA (Appendix 11.1), a specialist study indicated no such effect was anticipated.
2. Weather: It should be determined whether:		
a. The site, in normal, bad weather, or restricted visibility conditions, could present difficulties or dangers to craft, including sailing vessels, which might pass in close proximity to it.	✓	Visibility is assessed within the NRA (Section 6.9 of Appendix 11.1). As per the embedded mitigation listed in Section 11.7.1, the Wind Farm Area will be lit and marked in agreement with NLB, and the potential for adverse weather will be accounted for within this plan.
b. The structures could create problems in the area for vessels under sail, such as wind masking, turbulence or sheer.	✓	Wind masking, turbulence, and sheer impacts are discussed in Section 19.4 of the NRA (Appendix 11.1).
c. In general, taking into account the prevailing winds for the area, whether engine failure or other circumstances could cause vessels to drift into danger, particularly if in conjunction with a tidal set such as referred to above.	✓	The drifting model (forming part of the allision modelling process undertaken in Section 13 of Appendix 11.1) assesses the risk of engine breakdown leading to allision.
3. Collision Avoidance and Visual Navigation: It should be determined whether:		
a. The layout design will allow safe transit through the OREI by SAR helicopters and vessels.	✓	As per the anticipated consent conditions commitments listed in Section 11.7.2, the final layout will be agreed with the MCA through approval of the DSLP and ERCoP. Consideration of potential impacts on SAR helicopters were presented within the Scoping Report (NnGOWL, 2017). Impacts on SAR helicopters were scoped out of the assessment in agreement with aviation stakeholders (MS-LOT, 2017).
b. The MCA's Navigation Safety Branch and Maritime Operations branch will be consulted on the layout design and agreement will be sought.	✓	As per the anticipated consents condition commitments listed in Section 11.7.2, the final layout will be agreed with the MCA through approval of the DSLP.
c. The layout design has been or will be determined with due regard to safety of navigation and Search and Rescue.	✓	As per the anticipated consents condition commitments listed in Section 11.7.2, the final layout will be agreed with the MCA through approval of the DSLP and ERCoP.

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d.i. The structures could block or hinder the view of other vessels under way on any route.	✓	Visual impact of the turbines on navigation is assessed within Section 19.2.2 of the NRA (Appendix 11.1).
d.ii. The structures could block or hinder the view of the coastline or of any other navigational feature such as aids to navigation, landmarks, promontories, etc	✓	Visual impact of the turbines on navigational features is assessed within Section 19.2.3 of the NRA (Appendix 11.1).
4. Communications, Radar and Positioning Systems - To provide researched opinion of a generic and, where appropriate, site specific nature concerning whether:		
<p>a. The structures could produce radio interference such as shadowing, reflections or phase changes, and emissions with respect to any frequencies used for marine positioning, navigation and timing (PNT) or communications, including GMDSS and AIS, whether ship borne, ashore or fitted to any of the proposed structures, to:</p> <p>i. Vessels operating at a safe navigational distance</p> <p>ii. Vessels by the nature of their work necessarily operating at less than the safe navigational distance to the OREI, e.g. support vessels, survey vessels, SAR assets.</p> <p>iii. Vessels by the nature of their work necessarily operating within the OREI.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	<p>Impacts on marine radar are assessed within Section 15 of the NRA (Appendix 11.1). Impacts to other forms of position fixing and communications are assessed in Section 19 of the NRA (Appendix 11.1).</p>
<p>b. The structures could produce radar reflections, blind spots, shadow areas or other adverse effects:</p> <p>i. Vessel to vessel;</p> <p>ii. Vessel to shore;</p> <p>iii. VTS radar to vessel;</p> <p>iv. Racon to/from vessel.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	<p>Impacts on marine radar are assessed within Section 15 of the NRA (Appendix 11.1).</p>
c. The structures and generators might produce sonar interference affecting fishing, industrial or military systems used in the area.	✓	As stated in Section 19.6 of the NRA (Appendix 11.1), no sonar interference impacts are anticipated.
d. The site might produce acoustic noise which could mask prescribed sound signals.	✓	Noise impact is assessed within Section 19.9 of the NRA (Appendix 11.1).

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<p>e. Generators and the seabed cabling within the site and onshore might produce electro-magnetic fields affecting compasses and other navigation systems.</p>	✓	<p>Electromagnetic interference on navigation equipment is assessed within Section 19.7 of the NRA (Appendix 11.1).</p>
<p>5. Marine Navigational Marking: It should be determined:</p>		
<p>a. How the overall site would be marked by day and by night throughout construction, operation and decommissioning phases, taking into account that there may be an ongoing requirement for marking on completion of decommissioning, depending on individual circumstances.</p>	✓	<p>As per the anticipated consents condition commitments listed in Section 11.7.2, lighting and marking of the site will be agreed prior to construction with the NLB, MCA, and CAA for all phases of the Project.</p>
<p>b. How individual structures on the perimeter of and within the site, both above and below the sea surface, would be marked by day and by night.</p>	✓	<p>As per the anticipated consents condition commitments listed in Section 11.7.2, lighting and marking of the site will be agreed prior to construction with the NLB, MCA, and CAA for all phases of the project.</p>
<p>c. If the specific OREI structure would be inherently radar conspicuous from all seaward directions (and for SAR and maritime surveillance aviation purposes) or would require passive enhancers.</p>	✓	<p>As per the anticipated consents condition commitments listed in Section 11.7.2, lighting and marking of the site will be agreed prior to construction with the NLB, MCA, and CAA for all phases of the project.</p>
<p>d. If the site would be marked by additional electronic means e.g. Racons</p>	✓	<p>As per the anticipated consents condition commitments listed in Section 11.7.2, lighting and marking of the site will be agreed prior to construction with the NLB, MCA, and CAA for all phases of the project. This may include additional electronic means, such as Racon or AIS marking.</p>
<p>e. If the site would be marked by an AIS transceiver, and if so, the data it would transmit.</p>	✓	<p>As per the anticipated consents condition commitments listed in Section 11.7.2, lighting and marking of the site will be agreed prior to construction with the NLB, MCA, and CAA for all phases of the project. This may include additional electronic means, such as Racon or AIS marking.</p>
<p>f. If the site would be fitted with audible hazard warning in accordance with IALA recommendations</p>	✓	<p>As per the anticipated consents condition commitments listed in Section 11.7.2, lighting and marking of the site will be agreed prior to construction with the NLB, MCA, and CAA for all phases of the project. This will include consideration for sound signals, as stated in Section 4.4 of the NRA (Appendix 11.1).</p>

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g. If the structure(s) would be fitted with aviation lighting, and if so, how these would be screened from mariners or guarded against potential confusion with other navigational marks and lights.	✓	As per the anticipated consents condition commitments listed in Section 11.7.2, lighting and marking of the site will be agreed prior to construction with the NLB, MCA, and CAA for all phases of the project. This will include aviation lighting, with any potential for light confusion to mariners suitably mitigated.
h. Whether the proposed site and/or its individual generators complies in general with markings for such structures, as required by the relevant GLA in consideration of IALA guidelines and recommendations.	✓	As per the anticipated consents condition commitments listed in Section 11.7.2, lighting and marking of the site will be agreed prior to construction with the NLB, MCA, and CAA for all phases of the project. Lighting and marking will comply with IALA O139.
i. The aids to navigation specified by the GLAs are being maintained such that the 'availability criteria', as laid down and applied by the GLAs, is met at all times.	✓	All AtoNs will be monitored and maintained to ensure the required availability targets are met, as stated in Section 4.5 of the NRA (Appendix 11.1).
j. The procedures that need to be put in place to respond to casualties to the aids to navigation specified by the GLA, within the timescales laid down and specified by the GLA.	✓	Section 4.5 of the NRA (Appendix 11.1) states superintendence and management intentions. Procedures related to AtoN casualty response will be agreed with the NLB prior to construction.
k. The ID marking will conform to a spreadsheet layout, sequential, aligned with SAR lanes and avoid the letters O and I.	✓	The ID marking scheme will be agreed with the NLB, MCA, and CAA prior to construction via approval of the LMP (as per Table 11.8 of the EIA).
l. Working lights will not interfere with AtoN or create confusion for the Mariner navigating in or near the OREI.	✓	The potential for light confusion will be assessed and addressed prior to construction as part of the overall lighting and marking scheme, which will be agreed with the NLB, MCA and CAA via approval of the LMP (as per Table 11.8 of the EIA).
<p>6. Hydrography - In order to establish a baseline, confirm the safe navigable depth, monitor seabed mobility and to identify underwater hazards, detailed and accurate hydrographic surveys are included or acknowledged for the following stages and to MCA specifications:</p>		
i. Pre-consent: The site and its immediate environs extending to 500m outside of the development area shall be undertaken as part of the licence and/or consent application. The survey shall include all proposed cable route(s).	✓	Hydrographic data has been collected for a minimum of 1 kilometre around the Wind Farm Area. For the Offshore Export Cable Corridor data has been collected 100 metres either side of the 300 metre cable route.
ii. Post-construction: Cable route(s)	✓	Post construction data will be collected to a similar extent for the Offshore Export Cable Corridor.

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iii. Post-decommissioning of all or part of the development: Cable route(s) and the area extending to 500m from the installed generating assets area.	✓	Post-decommissioning data will be collected around the installation locations as required at the point of decommissioning.
Annex 3: MCA template for assessing distances between wind farm boundaries and shipping routes		
“Shipping Route” template and Interactive Boundaries – where appropriate, the following should be determined:		
a. The safe distance between a shipping route and turbine boundaries.	✓	Vessel routing was assessed within Section 9 of the NRA (Appendix 11.1). The assessment was updated using 2016 marine traffic survey data within the traffic validation assessment (Appendix 11.2).
b. The width of a corridor between sites or OREIs to allow safe passage of shipping.	✓	Cumulative impacts (including corridors created between wind farms) are assessed in Section 11.8.4.
Annex 4: Safety and mitigation measures recommended for OREI during construction, operation and decommissioning.		
Mitigation and safety measures will be applied to the OREI development appropriate to the level and type of risk determined during the Environmental Impact Assessment (EIA).The specific measures to be employed will be selected in consultation with the Maritime and Coastguard Agency and will be listed in the developer’s Environmental Statement (ES). These will be consistent with international standards contained in, for example, the Safety of Life at Sea (SOLAS) Convention - Chapter V, IMO Resolution A.572 (14)3 and Resolution A.671(16)4 and could include any or all of the following:	✓	Embedded mitigation is provided within Section 11.7.1. The impact assessment (Section 11.8) assessed the risk of each scoped in impact as to be as low as is reasonably practicable (and of either minor or moderate significance), and no further mitigation has been identified.
a. Promulgation of information and warnings through notices to mariners and other appropriate maritime safety information (MSI) dissemination methods.	✓	As per embedded mitigation (Section 11.7.1), all relevant information will be circulated (including via NtM) prior to, and during, the construction, operation, and decommissioning phases.
b. Continuous watch by multi-channel VHF, including Digital Selective Calling (DSC).	✓	Vessel activity will be monitored from the Marine Control Centre, and, when on-site, a guard vessel.

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c. Safety zones of appropriate configuration, extent and application to specified vessels¹	✓	As per embedded mitigation (Section 11.7.1), 500m safety zones will be applied for surrounding any structure where construction work is ongoing, or where major maintenance work is underway during the operational phase. Additionally, 50m safety zones will be applied for around partially completed structures where work is not active, and around completed structures prior to commissioning.
d. Designation of the site as an area to be avoided (ATBA).	✓	This is not considered a necessary mitigation, based on the use of safety zones where appropriate, and lighting and marking of the site (as per embedded mitigation, Section 11.7.1 and the anticipated consents condition commitments listed in Section 11.7.2).
e. Provision of AtoN as determined by the GLA	✓	All lighting and marking of the site will be agreed with the NLB, MCA, and CAA prior to construction.
f. Implementation of routeing measures within or near to the development.	✓	This is not considered a necessary mitigation.
g. Monitoring by radar, AIS, CCTV or other agreed means	✓	Vessel activity will be monitored from the Marine Control Centre, and, when on-site, a guard vessel.
h. Appropriate means for OREI operators to notify, and provide evidence of, the infringement of safety zones.	✓	Safety zones will be monitored via a guard vessel, as per embedded mitigation (Section 11.7.1).
i. Creation of an Emergency Response Cooperation Plan with the MCA's Search and Rescue Branch for the construction phase onwards.	✓	An ERCoP will be created prior to construction, as per the anticipated consents condition commitments listed in Section 11.7.2.
j. Use of guard vessels, where appropriate	✓	As per embedded mitigation (Section 11.7.1), guard vessels will be utilised as appropriate.
k. Any other measures and procedures considered appropriate in consultation with other stakeholders.	✓	Proposed mitigation measures were included within the Scoping Report (NnGOWL, 2017) for consultation purposes. It has been agreed with the MCA that these measures were suitable for the Project.

¹ As per SI 2007 No 1948 "The Electricity (Offshore Generating Stations) (Safety Zones) (Application Procedures and Control of Access) Regulations 2007.

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<p>Annex 5: Standards, procedures and operational requirements in the event of search and rescue, maritime assistance service counter pollution or salvage incident in or around an OREI, including generator/installation control and shutdown.</p>		
<p>The MCA, through HM Coastguard, is required to provide Search and Rescue and emergency response within the sea area occupied by all offshore renewable energy installations in UK waters. To ensure that such operations can be safely and effectively conducted, certain requirements must be met by developers and operators.</p>		
a. An ERCoP will be developed for the construction, operation and decommissioning phases of the OREI.	✓	An ERCoP will be created prior to construction, as per the anticipated consents condition commitments listed in Section 11.7.2.
b. The MCA's guidance document <i>Offshore Renewable Energy Installation: Requirements, Advice and Guidance for Search and Rescue and Emergency Response</i> for the design, equipment and operation requirements will be followed.	✓	All relevant MCA guidance, including MGN543 will be considered.

Table 2: Methodology for Assessing the Marine Navigational Safety & Emergency Response Risks of Offshore Renewable Energy Installations

Issue	Yes/No	Reference
A1: Reference Sources - Lessons learned.	✓	Appendix 11.1: NRA (Section 14.2 Construction Hazards)
B1: Base case traffic densities and types.	✓	Appendix 11.2: Traffic Validation (Section 4.2 Vessel Types) Appendix 11.1: NRA (Section 8 Marine Traffic Surveys)
B2: Future traffic densities and types.	✓	Appendix 11.2: Traffic Validation (Section 6 Main Routes) EIA Report: Section 11.6.2 (Development of Baseline Conditions)
B3: The marine Environment		
B3.1: Technical & operational analysis (TOA)	✓	Appendix 11.1: NRA (Section 3 Wind Farm Details) EIA Report: Chapter 4: Project Description EIA Report: Section 11.7 (Design Envelope)
B3.2: Generic TOA	✓	Appendix 11.1: NRA (Section 13 Risk Assessment) EIA Report: Section 11.8 (Impact Assessment)
B3.3 Potential accidents	✓	EIA Report: Section 11.8 (Impact Assessment)
B3.4 Affected navigational activities	✓	EIA Report: Section 11.8 (Impact Assessment)
B3.5 Effects of OREI structures	✓	EIA Report: Section 11.8 (Impact Assessment)

Table 2: Methodology for Assessing the Marine Navigational Safety & Emergency Response Risks of Offshore Renewable Energy Installations

Issue	Yes/No	Reference
B3.6 Development phases	✓	EIA Report: Chapter 4: Project Description)
B3.7 Other structures & features	✓	EIA Report: Chapter 4: Project Description)
B3.8 Vessel types involved	✓	EIA Report: Chapter 4: Project Description)
B3.9 Conditions affecting navigation	✓	Appendix 11.1: NRA (Section 6.9 Metocean Data) Appendix 11.1: NRA (Section 19 Additional Navigation Issues) EIA Report: Section 11.8 (Impact Assessment)
B3.10 Human actions	✓	EIA Report: Section 11.8 (Impact Assessment)
C1: Hazard Identification	✓	Appendix 11.1: NRA (Section 12.2 Hazard Identification) EIA Report: Section 11.8 (Impact Assessment)
C2: Risk Assessment	✓	EIA Report: Section 11.8 (Impact Assessment)
C3: Influences on level of risk	✓	Appendix 11.2: Traffic Validation Appendix 11.1: NRA (Section 19 Additional Navigation Issues) EIA Report: Section 11.6 (Baseline) EIA Report: Section 11.7 (Design Envelope)
C4: Tolerability of risk	✓	Appendix 11.1: NRA (Section 12.2 Hazard Identification) EIA Report: Section 11.8 (Impact Assessment)
D1: Appropriate risk assessment	✓	Appendix 11.2: Traffic Validation Appendix 11.1: NRA (Section 12.2 Hazard Identification) Appendix 11.1: NRA (Section 13 Risk Assessment) Appendix 11.1: NRA (Section 19 Additional Navigation Issues) EIA Report: Section 11.8 (Impact Assessment)
D2: MCA acceptance for assessment techniques and tools	✓	EIA Report: Section 11.5 (Impact Assessment Methodology). As per Table 11.2 of the EIA Chapter, the MCA were content with the assessment methodology used.
D3: Demonstration of results	✓	Appendix 11.1: NRA (Section 12 Formal Safety Assessment) Appendix 11.1: NRA (Section 13 Risk Assessment) EIA Report: Section 11.8 (Impact Assessment)
D4: Area traffic assessment	✓	Appendix 11.2: Traffic Validation Appendix 11.1: NRA (Section 13 Risk Assessment) EIA Report: Section 11.8 (Impact Assessment)

Table 2: Methodology for Assessing the Marine Navigational Safety & Emergency Response Risks of Offshore Renewable Energy Installations

Issue	Yes/No	Reference
D5: Specific traffic assessment	✓	Appendix 11.2: Traffic Validation Appendix 11.1: NRA (Section 13 Risk Assessment) EIA Report: Section 11.8 (Impact Assessment)
E1: Risk control log	✓	Appendix 11.1: Section 5.3 (Hazard Review Workshop)
E2: Marine stakeholders	✓	Appendix 11.1: Section 5 (Consultation) EIA Report: Section 11.4 (Relevant Consultations)
F1: Hazard identification checklist	✓	Appendix 11.1: Section 5.3 (Hazard Review Workshop) Appendix 11.1: NRA (Section 12.2 Hazard Identification)
F2: Risk control checklist	✓	Appendix 11.1: Section 5.3 (Hazard Review Workshop) Appendix 11.1: NRA (Section 12.2 Hazard Identification)