

Marine Licence with introductory note

The Marine and Coastal Access Act (2009)

Licence Holder: Blue Gem Wind

Company Number: 11116383

Blue Gem Wind Ltd
Bridge Innovation Centre
Pembrokeshire Science and Technology
Park
Pembroke Dock
SA72 6UN

Project Erebus Floating Offshore Wind Farm

Licence Number:

ORML2170

Project Erebus Floating Offshore Wind Farm

Marine Licence number: ORML2170

Introductory note

This introductory note does not form a part of the marine licence

The main features of the marine licence are as follows.

This Marine Licence relates to the Project Erebus Floating Offshore Wind Farm Project. The array area covers 43.5km² within water depths of 65-85m located approximately 35km southwest of the Pembrokeshire coastline. The offshore cable corridor is approximately 49km in length making landfall at West Angle Bay, Pembrokeshire. The main elements of the Proposed Development include the construction and operation of the following:

- Up to 7 Wind Turbine Generators (WTG) on semi-submersible platforms;
- mooring systems and foundation options to secure the platforms; and
- inter-array and export cabling.

The works include the deposit of external cable protection (concrete mattresses or rock berm); levelling of sandwaves for ground preparatory works by dredging, prior to cable installation with the re-deposit of the dredged material within the licence area; and the contingency for one unexploded ordnance deflagration.

The status log of the marine licence sets out the marine licence history, including any subsequent marine licence variation(s).

Status log of this marine licence		
Description	Date	Comments
Application	07 January 2022	Application received and considered to be duly made
Date licence determined	16 February 2023	Determination date

Related marine licences or applications under determination

Marine Licence or Application Number	Date	Comments
RML2281	Submitted 8 December 2022	Ground Investigations and Geotechnical survey to inform inter-array and export cable route.

End of introductory note.

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MARINE LICENCE, NUMBER ORML2170

1 LICENCE DETAILS

1.1 Marine Licence

This is a licence granted by the Licensing Authority in respect of an application numbered ORML2170 and duly made on 07 January 2022 and authorises the Licence Holder to carry on activities for which a licence is required under Part 4 of the Marine and Coastal Access Act 2009, (2009 Act). This licence should be interpreted in accordance with **Section 4**.

1.2 Licence Holder

The Licence Holder is the company set out below:

Company name: Blue Gem Wind Limited

Company number: 11116383

Address: Bridge Innovation Centre, Pembrokeshire Science and Technology Park, Pembroke Dock, SA72 6UN.

1.3 Licence Validity

Licence Start Date	17 February 2023
Licence End Date	31 December 2054
Licence Issue Date	17 February 2023

1.4 Conditions

This licence is subject to the conditions set out in **Section 3**.

Signed:



John Wheadon – Permitting Service Manager

For and on behalf of the Licensing Authority

2 LICENSED ACTIVITIES

2.1 Project

Project Erebus Floating Offshore Wind Farm

A demonstration scale Floating Offshore Wind Farm (FLOW) development. The array area is located approximately 35km southwest of the Pembrokeshire coastline and covers an area of 43.5km² within water depths of 65-85m and is located outside the 12nm limit but within the Welsh Zone.

The offshore export cable corridor is approximately 49km in length making landfall at West Angle Bay, Pembrokeshire. At the array site up to 7 Wind Turbine Generators (WTG) with a total generating capacity of up to 100MW will be housed on semi-submersible floating platforms attached via a mooring system and suitable foundations to the seabed. Inter-array cables will link between the structures.

The following Licensed Activities can be conducted within the Licence Period, within the Licensed Area and in accordance with the Approved Application and the Approved Supporting Documents:

Table 1 Licensed Activities

Activity 1 Installation, operation, maintenance and decommissioning of Wind Turbine Generators with semi-submersible floating platforms	
Type of Licensed Activity	Deposit/Removal/Construction
Description	Construction, operation, maintenance and subsequent decommissioning of up to 7 WTGs housed on semi-submersible floating platforms. Deposit, maintenance and removal of all markings, lights and buoys as required for aviation and navigational safety.
Quantities/Dimensions	The WTG and semi-submersible platforms must fall within the parameters set out within Appendix 1 Markings, lights and buoys as required for aviation and navigational safety.
Activity 2 Installation of Mooring system	
Type of Licensed Activity	Deposit/Removal/Construction
Description	Construction and subsequent decommissioning of mooring systems required for the semi-submersible platforms.

Material types to be removed or deposited	Iron and steel, other (synthetic rope)
Quantities/Dimensions	All mooring systems (and their installation) must fall within the parameters set out within Appendix 2
Activity 3 Deposit, maintenance and decommissioning of export and array cables	
Type of Licensed Activity	Deposit/Removal/Construction
Description	Preparatory work including route clearance, and the subsequent installation of inter-array cables and offshore export cables; including cable landfall at West Angle Bay, Pembrokeshire by preferred Option 1: Horizontal Directional Drilling (HDD) and contingency Option 2: open cut trenching. Deposit of concrete mattresses or rock berm to ensure the protection of inter-array and export cables, and at the HDD exit point in the shallow sub-tidal. Maintenance of export and inter array cables.
Material types to be removed or deposited	Deposit: Other (Cables), Stone/Rock, Concrete (Crossings), steel/iron (sheet piles for temporary coffer dam) Removal: Silt, Sand, Gravel (removed by trailing suction hopper dredger or Mass Flow Excavator (MFE), and re-deposited as indicated in Activity 9) A maximum of 5 export cable repairs (new section of cable inserted) with a maximum seabed disturbance area of 1000mx50m= 50,000m² per repair location. Total of 250,000m² A maximum of 12 export cable remediation (reburial) events with a maximum seabed disturbance area of 50,000m² per remediation event. Total of 600,000m². A maximum of 5 inter-array cable repairs with a maximum seabed disturbance area of 301,100m² per repair. Total of 1,505,250m².
Quantities/Dimensions	All cabling works must fall within parameters as set out above and within Appendix 3
Activity 4 Unexploded Ordnance (UXO) Clearance	
Type of Licensed Activity	Use of Explosives - The clearance of 1 UXO.

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Description	The clearance of 1 UXO with deflagration (low order) the preferred method.
Material types to be removed or deposited	Deposit: N/A Removal: UXO
Quantities/Dimensions	A maximum of 1 UXO clearance event.
Activity 5 Removal of accidentally dropped objects pursuant to condition 3.7	
Type of Licensed Activity	Removal
Description, material types and quantities/dimensions	As approved by the Licensing Authority under condition 3.7

Table 2 Licensed Dredge / Disposal Activities

Activity 6 Sandwave levelling		
Marine Licensable Activity Type	Dredging and Deposit	
Description	Sandwave levelling to allow operation of cable burial equipment and ensure adequate burial depth. A Mass Flow Excavator (MFE) and/or Trailer Suction Hooper Dredger (TSHD) will be used with any materials removed returned as close to the point of removal as possible. Activity anticipated to take up to the equivalent of 15 days as part of the construction phase of the Project and take place along approximately 3km of the 49km export cable route and at the Project array site within seven segments (see these 8 Dredge zones within Table 3).	
Maximum Dredge Depth	6m Below Chart Datum	
Maximum Dredge volume and tonnage [for disposal only] for material to be deposited under this licence	Total m³	Total Tonnage
	584,600 m ³	1,549,190 tonnes
Deposit Location 1	Site Code: LU167	Site Name: Erebus OWF Cable Site 1

Maximum Deposit to Deposit Location 1 from Dredge Zone 1	Specific Gravity 2.65	Total m³ 26,000 Total tonnage 68,900
Material Type	Sand to gravelly or muddy sand Only material from Dredge Zone 1 are permitted to be deposited at this site.	
Deposit Location 2	Site Code: LU166	Site Name: Erebus OWF Cable Site 2
Maximum Deposit to Deposit Location 2 from Dredge Zone 2	Specific Gravity 2.65	Total m³ 19,500 Total tonnage 51,675
Material Type	Sand to gravelly or muddy sand Only material from Dredge Zone 2 are permitted to be deposited at this site.	
Deposit Location	Site Code: LU165	Site Name: Erebus OWF Cable Site 3
Maximum Deposit for Dredge Zone 3	Specific Gravity 2.65	Total m³ 26,000 Total tonnage 68,900
Maximum Deposit for Dredge Zone 4	Specific Gravity 2.65	Total m³ 52,000 Total tonnage 137,800
Maximum Deposit for Dredge Zone 5	Specific Gravity 2.65	Total m³ 97,500 Total tonnage 258,375
Material Type	Sand to gravelly or muddy sand Only material from Dredge Zones 3, 4 and 5 are permitted to be deposited at this site.	

Deposit Location	Site Code: LU164	Site Name: Erebus OWF Cable Site 4
Maximum Deposit for Dredge Zone 6	Specific Gravity 2.65	Total m³ 117,000 Total tonnage 310,050
Material Type	Sand to gravelly or muddy sand Only material from Dredge Zone 6 are permitted to be deposited at this site.	
Deposit Location	Site Code: LU163	Site Name: Erebus OWF Cable Site 5
Maximum Deposit for Dredge Zone 7	Specific Gravity 2.65	Total m³ 65,000 Total tonnage 172,250
Maximum Deposit for Dredge Zone 8	Specific Gravity 2.65	Total m³ 181,600 Total tonnage 481,240
Deposit Location	Site Code: LU163	Site Name: Erebus OWF Cable Site 5
Material Type	Sand to gravelly or muddy sand Only material from Dredge Zone 7 and 8 are permitted to be deposited at this site.	

2.2 Licensed Area

The Licence Holder is authorised to conduct the activities described in **Table 1** in the Welsh Zone with export cable landfall in Pembrokeshire bounded by the coordinates specified in **Appendix 4** and as indicated in the plan attached at **Appendix 5**.

In the event of any discrepancy between the coordinates set out in Appendix 4 and the plan within Appendix 5, the coordinates shall take precedence.

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The Licence Holder is authorised to conduct the dredging activities described in **Table 2** bounded by the coordinates specified in **Table 3**, as indicated on the plan submitted with the Approved Application and attached at **Appendix 6**.

Table 3 **Coordinates for dredging**

Dredge Zone 1	
Longitude (W)	Latitude (N)
-5.184922	51.636281
-5.186250	51.636637
-5.185987	51.636974
-5.185725	51.637280
-5.185424	51.637602
-5.185196	51.637828
-5.184811	51.638179
-5.184462	51.638483
-5.183281	51.637966
-5.183635	51.637657
-5.183942	51.637379
-5.184270	51.637052
-5.184519	51.636780
-5.184717	51.636545
Dredge Zone 2	
Longitude (W)	Latitude (N)
-5.217333	51.591064
-5.218284	51.591740
-5.205916	51.598485
-5.204970	51.599000
-5.204020	51.598324
-5.204768	51.597916
-5.205197	51.597682
Dredge Zone 3	
Longitude (W)	Latitude (N)
-5.232088	51.582370
-5.233131	51.582991
-5.232664	51.583295
-5.227947	51.586370
-5.227573	51.586614
-5.226530	51.585993
-5.227109	51.585615
-5.231589	51.582695
Dredge Zone 4	
Longitude (W)	Latitude (N)
-5.233687	51.581397
-5.234627	51.582079
-5.234289	51.582264
-5.233943	51.582468
-5.233624	51.582670
-5.233131	51.582991
-5.232088	51.582370
-5.232582	51.582048
-5.232851	51.581877

Dredge Zone 1	
-5.233159	51.581691
-5.233443	51.581529
Dredge Zone 5	
Longitude (W)	Latitude (N)
-5.233687	51.581397
-5.233997	51.581236
-5.234333	51.581071
-5.234711	51.580896
-5.246743	51.575525
-5.247111	51.575355
-5.247470	51.575177
-5.247819	51.574992
-5.250916	51.573292
-5.251459	51.572994
-5.252412	51.573669
-5.251983	51.573904
-5.248772	51.575667
-5.248452	51.575838
-5.247957	51.576084
-5.247584	51.576256
-5.235552	51.581627
-5.235276	51.581753
-5.234895	51.581939
-5.234627	51.582079
Dredge Zone 6	
Longitude (W)	Latitude (N)
-5.367308	51.484313
-5.368577	51.484738
-5.367656	51.485811
-5.359823	51.494932
-5.358554	51.494507
-5.366425	51.485342
Dredge Zone 7	
Longitude (W)	Latitude (N)
-5.569350	51.466527
-5.581230	51.470307
-5.582411	51.470682
-5.581754	51.471482
-5.568670	51.467320
Dredge Zone 8	
Longitude (W)	Latitude (N)
-5.647695	51.492326
-5.582943	51.493771
-5.562758	51.462706
-5.558296	51.455833
-5.552992	51.447659
-5.551689	51.424304
-5.599257	51.425956
-5.643798	51.424960

In the event of any discrepancy between the coordinates set out above and the plan attached at **Appendix 6**, the coordinates shall take precedence.

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- 2.3 The Licence Holder is authorised to conduct the deposit activities described in **Table 2** bounded by the coordinates specified in **Table 4** as indicated on the plan submitted with the Approved Application and attached at **Appendix 7**.

Table 4 Permitted Deposit Locations

Deposit Location LU167	
Longitude (W)	Latitude (N)
-5.184841	51.640841
-5.179531	51.638525
-5.181613	51.636686
-5.183286	51.634974
-5.184217	51.631200
-5.190308	51.632832
-5.189969	51.634202
-5.189302	51.636903
-5.184841	51.640841
Deposit Location LU166	
Longitude (W)	Latitude (N)
-5.204679	51.601524
-5.200383	51.598468
-5.221348	51.587096
-5.225667	51.590166
-5.204679	51.601524
Deposit Location LU165	
Longitude (W)	Latitude (N)
-5.227591	51.589125
-5.222832	51.586292
-5.255114	51.568779
-5.259356	51.571781
-5.227591	51.589125
Deposit Location LU164	
Longitude (W)	Latitude (N)
-5.362438	51.497867
-5.356591	51.495903
-5.365654	51.478659
-5.372796	51.481048
-5.370232	51.482932
-5.369418	51.484368
-5.367998	51.487116
-5.362438	51.497867
Deposit Location LU163	
Longitude (W)	Latitude (N)
-5.644767	51.441743
-5.647695	51.492326
-5.582943	51.493771
-5.566276	51.468119
-5.560685	51.466302
-5.579354	51.446377
-5.586322	51.444149
-5.644767	51.441743

In the event of any discrepancy between the coordinates set out above and the plan attached at **Appendix 7**, the coordinates shall take precedence.

2.4 Approved Supporting Documents

Title/Description of Document/	Date Submitted
ORML2170 Project Erebus Marine Licence Application	17 December 2021
ORML2170 Erebus Environmental Statement (ES) Vol 1	17 December 2021
ORML2170 Erebus ES Vol 2 Figures	17 December 2021
ORML2170 Erebus ES Vol 3 Appendices	17 December 2021
ORML2170 Erebus Supplementary Environmental Information- EIA Addendum	24 August 2022
ORML2170 Technical Clarification Document	20 November 2022

3 CONDITIONS

Notification and Inspection

3.1 Notification of Commencement

- 3.1.1** The Licence Holder must notify the Licensing Authority no less than **14 days** before the commencement of the Licensed Activities, or an individual phase of the Licensed Activities, is expected to commence.
- 3.1.2** The Licence Holder must notify Welsh Government Marine & Fisheries Division (Control & Enforcement Branch) no less than **14 days** before the commencement of the Licensed Activities, or an individual phase of the Licensed Activities, is expected to commence.
- 3.1.3** The Licence Holder must ensure that local mariners and fishermen's organisations, UKHO and other local stakeholders are made fully aware of the Licensed Activities through local notices to mariners **14 days** prior to the commencement of the Licensed Activities, or an individual phase of the Licensed Activities. The notice should detail the start date of the works and expected vessel routes from the port to the location.
- 3.1.4** The Licence Holder must notify The Kingfisher Information Service of Seafish no less than **14 days** prior to the commencement of the Licensed Activities, or an individual phase of the Licensed Activities, is expected to commence.
- 3.1.5** The Licence Holder must notify The Ministry of Defence safeguarding no less than **14 days** prior to the commencement of the Licensed Activities, or an individual phase of the Licensed Activities, is expected to commence.

3.2 Notification of Vessels and/or Vehicles

The Licence Holder must ensure that the details of the vessels and/or vehicles utilised to undertake the Licensed Activities are submitted to the Licensing Authority and Welsh Government Marine & Fisheries Division (Control & Enforcement Branch) at least **24 hours** prior to the commencement of the Licensed Activities.

3.3 Notification of Agents/Contractors/Sub-contractors

The Licence Holder must ensure that details of any agent(s), contractor(s) or sub-contractor(s) utilised to undertake the Licensed Activities are submitted to the Licensing Authority at least **24 hours** prior to the commencement of Licensed Activities.

3.4 Notification of HM Coastguard

The Licence Holder must ensure that HM Coastguard is made aware of the Licensed Activities at least **24 hours** prior to commencement by contacting The National Maritime Operations Centre at **zone28@hmcg.gov.uk**.

3.5 Inspection of Licensed Activities

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The Licence Holder must allow Marine Enforcement Officers or any other person authorised by the Licensing Authority to inspect the Works at any reasonable time.

3.6 Notification of Completion

- 3.6.1** The Licence Holder must notify the Licensing Authority within **10 days** of completion of the Licensed Activities or an individual phase of the Licensed Activities.
- 3.6.2** The Licence Holder must notify Welsh Government Marine & Fisheries Division (Control & Enforcement Branch) within **10 days** of completion of the Licensed Activities, or a phase of the Licensed Activities.
- 3.6.3** The Licence Holder must notify the UK Hydrographic Office within **10 days** of completion of the Licensed Activities, or an individual phase of the Licensed Activities.
- 3.6.4** The Licence Holder must notify The Kingfisher Information Service of Seafish as soon as reasonably practicable and no later than **24 hours** after completion of the Licensed Activities or an individual phase of the Licensed Activities.
- 3.6.5** The Licence Holder must notify the Ministry of Defence safeguarding as soon as reasonably practicable and no later than **24 hours** after completion of the Licensed Activities or an individual phase of the Licensed Activities.

3.7 Accident or Emergency

- 3.7.1** If, by reason of force majeure, any substances or articles are deposited otherwise than as permitted as part of the Licensed Activities or in the Licensed Area full details of the circumstances shall be notified to the Licensing Authority within **48 hours** of the incident occurring.
- 3.7.2** If it is necessary for the Licence Holder to recover or remove any equipment, plant or machinery used to undertake the Licensed Activities that have been dropped as a result of an accident or emergency, the Licence Holder is permitted to do so provided that the methodology for such recovery or removal has been approved by the Licensing Authority.

3.8 Distribution of Copies of this Licence

The Licence Holder is required to ensure that a copy of this Licence is given to:

- All agent(s), contractor(s) and sub-contractor(s) whose names have been provided to the Licensing Authority under condition 3.3 and
- The Masters of any vessels and transport managers responsible for the vehicles employed in accordance with this Licence whose details have been submitted to the Licensing Authority under condition 3.2.

3.9 Inspection of Documents

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Copies of this Licence shall be made available at the following locations:

- at the address of the Licence Holder specified in section 1.2;
- at any site office, located at or adjacent to the Licensed Area, used by the Licence Holder or its agent(s), contractor(s) or sub-contractor(s) responsible for the loading transportation or deposit of any substances or articles permitted as part of the Licensed Activities;
- on board each vessel or vehicle carrying out Licensed Activities.

The documents referred to in this Condition shall be available at all reasonable times for inspection by officers appropriately authorised by the Licensing Authority and authorised Marine Enforcement Officers at the locations stated in that paragraph.

Vessels, Plant and Equipment

3.10 Notified Contractors, Vessels and/or Vehicles only to Carry out Licensed Activities

Only those agent(s), contractor(s), sub-contractor(s), vessels and/or vehicles whose details have been notified to the Licensing Authority may operate under the terms of this Licence. Any changes must be notified to and be approved by the Licensing Authority in writing prior to any such agent, contractor, subcontractors or vehicles carrying out any Licensed Activities pursuant to or otherwise operating under this Licence.

3.11 Equipment, Structures and Access

The Licence Holder must ensure that all equipment, temporary structures, access tracks, waste and/or debris associated with the Licensed Activities are removed on completion of the Licensed activities.

Safety

3.12 Removal of Deposited Material

If the Licensing Authority considers it necessary or advisable for the safety of navigation, the Licence Holder must remove any deposit specified by the Licensing Authority or Marine Enforcement Officers within one month of notice being given by the Licensing Authority, and shall not replace such material until the Licensing Authority has given its written approval.

Pollution control

3.13 Pollution Prevention

The Licence Holder must ensure that pollution prevention best practice is adhered to at all times. Any incidents must be reported to the Licensing Authority as soon as possible using the hotline number **0300 065 3000**.

3.14 Spillage of Pollutants

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The Licence Holder must employ bunding, storage facilities and spill kits to contain and prevent the release of fuel, oils and chemicals associated with the plant, refuelling and construction equipment into the marine environment. Secondary containment must be used with a capacity of **no less than 110%** of the container's storage capacity

3.15 Prevention of Disposal of Man-made Debris

The Licence Holder must ensure that all reasonable precautions are taken to prevent the disposal of man-made debris to the marine environment. Such material must be removed immediately and be disposed of appropriately. If it is not possible to prevent manmade debris from entering the marine environment during the Licensed Activities, the Licensed Activities must cease immediately.

3.16 Cleanliness of Equipment

The Licence Holder must ensure that equipment, machinery and PPE are washed with freshwater and/or thoroughly airdried before deployment and before moving between locations.

Activity-specific Conditions

3.17 Project Parameters

3.17.1 The Licence Holder must ensure that all Project structures constructed/deployed fall within the parameters set out within Environmental Statement Chapter 4 Project Description (ORML2170 ES Vol1 Chapter 4) and the ORML2170 Supplementary Environmental Information- EIA Addendum, and as detailed in Table 1 and Appendix 1 and 2.

3.17.2 The Licence Holder must ensure that cabling and cable protection must fall within the parameters set out within Environmental Statement Chapter 4 Project Description (ORML2170 ES Vol1 Chapter 4) and as detailed in Table 1 and Appendix 3.

3.18 Project Layout Plan

3.18.1 The Licence Holder must submit a Project Array Layout Plan to the Licensing Authority for written approval at least **6 months** prior to the commencement of Licensed Activities. The Plan should set out the proposed details of the authorised project, including the:

- i. number, dimensions, specification, foundation type(s) and depth for each WTG and offshore platforms;
- ii. the grid coordinates of the centre point of the proposed location for each WTG and offshore platforms;
- iii. proposed layout of all cables; and
- iv. location and specification of all other aspects of the Licensed Activities.

- 3.18.2** The Licence Holder must ensure that any actions outlined in the Project Array Layout Plan detailed in condition 3.18.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the action outlined in the documents must be submitted to, and approved in writing by the Licensing Authority prior to any changes being enacted.

3.19 Aids to Navigation

- 3.19.1** The Licence Holder must submit an Aids to Navigation Management Plan (AtNP) to the Licensing Authority for written approval at least **4 months** prior to commencement of Licensed Activities. No Licensed Activities may be undertaken prior to written approval from the Licensing Authority. The AtNP must consider all stages of the Licensed Activities and provide details on location and specification of all infrastructure and aspects of the Project, navigation lights and marking of Project infrastructure, in addition to any additional aids to navigation required.
- 3.19.2** The Licence Holder must ensure that any actions outlined in the AtNP detailed in condition 3.19.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and approved in writing by the Licensing Authority prior to any changes being enacted.
- 3.19.3** The Licence Holder must submit a report to the Licensing Authority on the availability of aids to navigation in accordance with the timetable approved within the AtNP.
- 3.19.5** The Licence Holder must ensure that the Licensed Activities exhibit such lights, marks, sounds, signals and other aids to navigation and to take such steps for the prevention of danger to navigation as directed by Trinity House.

3.20 Navigation Risk Assessment (NRA)

- 3.20.1** The Licence Holder must submit an updated Licensed Area NRA for written approval at least **4 months** prior to the commencement of any Licensed Activities. This should include the Tow-out passage plan risk assessment.
- 3.20.2** The Licence Holder must ensure that any actions outlined in the updated Licensed Area NRA detailed in condition 3.20.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and approved in writing by the Licensing Authority prior to any changes being enacted.

3.21 Depth Reduction

The Licence Holder must ensure that any depth reductions resulting from cable protection activity do not compromise safe navigation and that there is no more than 5% reduction in surrounding depth referenced to Chart Datum at any

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location within the Licensed Area without prior written approval from the Licensing Authority.

3.22 Load line Exemption

The Licence Holder must ensure that a load line exemption is obtained from the MCA prior to any towage of floating infrastructure.

3.23 Mooring verification

The Licence Holder must at all times ensure that the Licensed Activities are maintained in a safe condition that does not present a danger to the environment, or other marine users. Floating devices and any devices suspended in the water column must have a Third-Party verification of the mooring arrangements prior to construction to provide assurance that the moorings are suitable for the expected metocean conditions at the Project's Array location.

3.24 Colouring of Infrastructure

The Licence Holder must paint all infrastructure in the Licenced Area as directed by Trinity House.

3.25 Coatings

The Licence Holder must ensure that any coatings/treatments used in carrying out the Licensed Activities are suitable for use in the marine environment and are used in accordance with best environmental practice.

3.26 Aviation lighting

3.26.1 The Licence Holder must submit an Aviation Lighting Scheme Plan to the Licensing Authority for written approval, at least **4 months** prior to commencing of Licenced Activities. This plan should confirm lighting requirements necessary for both civil and military aviation safety and detail how they will be implemented for the lifetime of the Project. No Licenced Activities may be undertaken prior to written approval from the Licensing Authority.

3.26.2 The Licence Holder must ensure that any actions outlined in the aviation lighting scheme plan detailed in condition 3.26.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and approved in writing by the Licensing Authority prior to any changes being enacted.

3.27 Emergency Response

3.27.1 The Licence Holder must submit an Emergency Response Co-operation Plan (ERCoP) to the Licensing Authority for written approval at least **4 months** prior to commencing Licensed Activities. The ERCoP must include a Search and Rescue (SAR) checklist based on requirements

outlined within MGN654 Annex 5. No Licenced Activities may be undertaken prior to written approval from the Licensing Authority.

- 3.27.2** The Licence Holder must ensure that any actions outlined in the ERCoP detailed in condition 3.27.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and approved in writing by the Licensing Authority prior to any changes being enacted.

3.28 Navigational Safety

- 3.28.1** The Licence Holder must ensure a regular programme of monitoring of device condition. In case of damage, destruction or decay of any device or part of a device, the Licence Holder shall, as soon as possible and no later than **24 hours** after becoming aware of such damage, destruction or decay, notify Trinity House, Maritime and Coastguard Agency, Kingfisher Information Service of Seafish, UKHO and the Licensing Authority.
- 3.28.2** In the event of cable exposure on or above the seabed, the Licence Holder must issue a notice to mariners and notify the Kingfisher Information Service of the location and extent of exposure no later than **3 days** following its identification. Copies of all said notices must be provided to the Licensing Authority, Trinity House and Maritime and Coastguard Agency.

3.29 Navigation Monitoring

- 3.29.1** The Licence Holder must submit a Navigation Monitoring Specification for construction and post construction navigation monitoring survey to the Licensing Authority for written approval at least **4 months** prior to commencement of any Licensed Activity. No Licensed Activities may be undertaken prior to written approval from the Licensing Authority. The survey specification must include;
- (i). Pre-construction bathymetric survey of the Licensed Area extending to an appropriate buffer around the array site and all proposed cable routes;
 - (ii). post-construction bathymetric survey of the installed export cable route and post-decommissioning swath bathymetric survey of the Licensed cable route and array area.
 - (iii). All bathymetric surveys to IHO Order 1a standard and be in compliance with MGN654 (Hydrographic Guidelines for Offshore Renewable Energy Developers), which includes the requirement for the full density data and reports to be delivered to the MCA and the UKHO for the update of nautical charts and publications.
 - (iv). Vessel traffic monitoring by Automatic Identification System (AIS) for the duration of the construction phase

(v). Vessel traffic monitoring by Automatic Identification System (AIS) for a 3 year period post-construction phase

(vi) A study to establish the electromagnetic deviation, affecting ship compasses and other navigating systems, of the high voltage cable route with follow up deviation survey of the export cable post-construction if necessary.

(vii). Detail of the programme/timetable of monitoring and reporting.

3.29.2 The Licence Holder must ensure that any actions outlined in the Navigation Monitoring Specifications detailed in condition 3.29.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and approved in writing by the Licensing Authority prior to any changes being enacted.

3.29.3 In line with condition 3.29.1 the Licence Holder must submit a report to the Licensing Authority for written approval in line with the timetable agreed in the Navigation Monitoring Specification.

3.29.4 In accordance with condition 3.29.1 hydrographic surveys of the Licensed Area must be submitted to the UKHO, with notification to the MCA and Licensing Authority.

3.30 Cable Specification and Installation Plan

3.30.1 The Licence Holder must submit a Cable Specification and Installation Plan to the Licensing Authority for written approval at least **4 months** prior to commencement of any Licensed Activity. No Licensed Activities may be undertaken prior to written approval from the Licensing Authority. The plan must include;

(i) Technical specification;

(ii) Location, including outlines of cable crossings, burial and surface laid sections;

(iii) Timings, including duration of intertidal works;

(iv) Burial risk assessment to ascertain burial depth;

(v) The proposed locations, types, and quantities of cable protection to be deposited;

(vi) Installation and cable laying techniques;

(vii) Cable crossing armouring methodology;

(viii) Installation machinery failure contingency plan;

(ix) Location, type, and quantity of any wet-stored cabling and/or cable protection and the proposed duration of the wet storage;

(x) Proposals for monitoring offshore cables including cable protection during the operational lifetime of the authorised scheme which includes a risk based approach to the management of unburied or shallow buried cables; and

(xi) Confirmation any rock protection across Turbot Bank is non-continuous.

3.30.2 The Licence Holder must ensure that any actions outlined in the documents detailed in condition 3.30.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and agreed in writing by the Licensing Authority prior to any changes being enacted.

3.30.3 The Licence Holder must provide to the Licensing Authority the following information within **4 months** of completion of the licensable activity for written approval:

(i) The final locations (in WGS84) and technical specifications of the cables;

(ii) The final locations (in WGS84) of buried and surface-laid sections of the cables;

(iii) The final locations (in WGS84), types, and quantities of cable protection used, deposited or installed; and

(iv) Identification of potential dangers to navigation.

In the event that any potential danger to navigation is identified following the completion of the licensable activities the Licence Holder must propose measures to ensure the safety of navigation in writing to the Licensing Authority for written approval. The measures must be implemented as approved.

3.31 Rock Protection

3.31.1 The Licence Holder must ensure that rock protection is only used where adequate burial cannot be achieved and that exact locations are reported as per condition 3.30.3

3.31.2 The Licence Holder must ensure that any rock misplaced or lost below Mean High Water Springs is reported to the Welsh Government Marine Enforcement Office, Maritime and Coastguard Agency and the Licensing Authority within **48 hours**, and located and recovered as directed by the Licensing Authority.

3.32 Cable Maintenance & Repair

3.32.1 The Licence Holder must submit a Cable Maintenance Method to the Licensing Authority for written approval **8 weeks** prior to commencement of Licenced Activity 3 listed in Table 1. Licensed Activity 3 may not be undertaken prior to written approval from the Licensing Authority. The Plan must include;

- (i) detail of methodologies for operations and maintenance including the methods to be used for re-laying and re-burial of repaired cable and removal and reinstatement of any cable protection; and
- (ii) a timescale for the periodic review of the document.

3.32.2 The Licence Holder must ensure that any actions outlined in the documents detailed in condition 3.33.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and agreed in writing by the Licensing Authority prior to any changes being enacted.

3.33 Disposal Returns

3.33.1 Certified returns of quantities of substances or articles deposited under this Licence are required to be submitted by **31 January** and **31 July** each year. The returns must specify the full Licence number and amount deposited (in m³ and tonnage) each calendar month at each authorised Deposit Area. Where no deposit is made in a given period a NIL return is required.

3.33.2 If this Licence expires during the course of the calendar year and is not superseded by a further Licence relating to the Licenced Activities, a certified return of quantities of substances or articles deposited under this Licence shall be submitted not later than **28 working days** after the Licence End Date.

3.34 Quantity of Disposal

3.34.1 The Licence Holder must ensure that the disposal of material to the licensed deposit areas as specified in **Table 2** does not exceed 1,549,190 tonnes.

3.34.2 All deposit vessels are required to carry an Admiralty Chart of appropriate scale to be used in navigation on which the co-ordinates of the licensed Deposit Area(s), as specified in **Table 4** should be marked.

3.35 Record of Quantity of Deposited Material

The Licence Holder must keep a log detailing the time, date, location and quantity of material deposited at sea. This log must be available for inspection by appropriately authorised officers of the Licensing Authority and Marine Enforcement Officers.

3.36 Noisy Activities

- 3.36.1** The Licence Holder must complete an entry into the UK Marine Noise Registry detailing the proposed dates and locations and nature of any piling activities or UXO clearance at least **10 days** prior to the commencement of the Licensed Activities.
- 3.36.2** The Licence Holder must amend the UK Marine Noise Registry proposed activity form should the timing of any piling activities or UXO clearance alter or no longer remain part of the Project.
- 3.36.3** The Licence Holder must complete an entry into the UK Marine Noise Registry detailing the actual dates and locations and nature of any piling activities or UXO clearance within **8 weeks** of completion of the noisy activity.

3.37 Project Environmental Management Plan (PEMP)

- 3.37.1** The Licence Holder must submit a PEMP to the Licensing Authority for written approval at least **6 months** prior to commencement of Licensed Activities. The PEMP must be in accordance with the outline PEMP (as submitted with application documents) and include all Project considerations and method statements in accordance with those assessed within the Environmental Statement and include the Construction Environmental Management Plan (CEMP), Marine Pollution Contingency Plan (MPCP) and Vessel Management Plan (VMP), all best practice guidelines and techniques. No construction and/or deployment may be undertaken prior to written approval from the Licensing Authority.
- 3.37.2** The Licence Holder must ensure that any actions outlined in the PEMP detailed in condition 3.38.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and approved in writing by the Licensing Authority prior to any changes being enacted.

3.38 Biosecurity

- 3.38.1** The Licence Holder must submit an Invasive Non-native Species (INNS) Management Plan to the Licensing Authority for written approval at least 6 weeks prior to commencement of Licensed Activities. The plan must be in accordance with the outline INNS Plan (submitted as Technical Appendix 9.4 within Volume 3 of the ES and include further information as identified within the ORML2170 Erebus Supplementary Environmental Information-EIA Addendum). No construction may be undertaken prior to written approval from the Licensing Authority.
- 3.38.2** The Licence Holder must ensure that any actions outlined in the INNS Management Plan detailed in condition 3.38.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and approved in writing by the Licensing Authority prior to any changes being enacted.

3.39 Bathing Water Mitigation Plan

3.39.1 Should open cut trenching be required as part of cable installation, the Licence Holder must submit a Bathing Water Mitigation Plan to the Licensing Authority for written approval **8 weeks** prior to its commencement. No open cut trenching may be undertaken prior to written approval from the Licensing Authority.

3.39.2 The Licence Holder must ensure that any actions outlined in the documents detailed in condition 3.39.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and agreed in writing by the Licensing Authority prior to any changes being enacted.

3.40 Marine Mammal Mitigation Plan (MMMP)

3.40.1 The Licence Holder must submit a MMMP to the Licensing Authority for written approval at least **4 months** prior to commencement of Licensed Activities. The MMMP must detail mitigation for all elements of the project construction; as well as the operational phase and decommissioning period. No construction or deployment may be undertaken prior to written approval from the Licensing Authority.

3.40.2 The Licence Holder must ensure that any actions outlined in the MMMP detailed in condition 3.40.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and approved in writing by the Licensing Authority prior to any changes being enacted.

3.41 UXO specific Marine Mammal Mitigation Plan (MMMP)

3.41.1 The Licence Holder must submit a UXO specific MMMP to the Licensing Authority for written approval at least **4 months** prior to commencement of Licensed Activities should one UXO clearance be required (as per Licensed Activities 7). The MMMP must detail mitigation suitable for a UXO clearance event. No construction or deployment may be undertaken prior to written approval from the Licensing Authority.

3.41.2 The Licence Holder must ensure that any actions outlined in the UXO specific MMMP detailed in condition 3.41.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and approved in writing by the Licensing Authority prior to any changes being enacted.

3.42 Environmental Mitigation and Monitoring Plan (EMMP)

3.42.1 The Licence Holder must submit a specification for mitigation monitoring surveys to the Licensing Authority for written approval at least **4 months** prior to the commencement of Licensed Activities. The monitoring specification must include the following unless otherwise agreed with the Licensing Authority;

- (i) Timetable for monitoring and reporting;

- (ii) marine mammal monitoring;
- (iii) scour monitoring;
- (iv) bathymetric surveys of Array site, Export Cable Corridor, sand wave levelling, rock protection and Annex I sand bank features;
- (v) benthic and coastal ecological monitoring;
- (vi) Marine Biodiversity Enhancement Strategy implementation;
- (vii) underwater operational noise;
- (viii) ghost-fishing gear entanglement;
- (ix) ornithological monitoring.

3.42.2 The Licence Holder must ensure that any actions outlined in the specification for the construction and post-construction monitoring survey detailed in condition 3.42.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and approved in writing by the Licensing Authority prior to any changes being enacted.

3.42.3 The Licence Holder must submit environmental monitoring reports for approval to the Licensing Authority no later than **12 months** from the survey dates specified within the approved monitoring programme as detailed in condition 3.42.1.

3.43 Marine Archaeology

3.43.1 The Licence Holder must submit a Protocol for Archaeological Discoveries (PAD) to the Licensing Authority for written approval at least **4 months** prior to commencement of any Licensed Activity. No Licensed Activities may be undertaken prior to written approval from the Licensing Authority.

3.43.2 The Licence Holder must ensure that any actions outlined in the PAD detailed in condition 3.43.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and approved in writing by the Licensing Authority prior to any changes being enacted.

3.43.3 The Licence Holder must submit a Written Scheme of Investigation (WSI) to the Licensing Authority for written approval at least **4 months** prior to commencement of any Licensed Activity. No Licensed Activities may be undertaken prior to written approval from the Licensing Authority. The WSI must detail the archaeological assessment and mitigation works offshore and within the inter-tidal area.

3.43.4 The Licence Holder must ensure that any actions outlined in the WSI detailed in condition 3.43.3 are implemented as approved in writing by

the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and approved in writing by the Licensing Authority prior to any changes being enacted.

3.44 Decommissioning

- 3.44.1** The Licence Holder must submit a Decommissioning Programme for the approval of the Licensing Authority at least **4 months** prior to commencement of construction. The Decommissioning Programme must include a timetable and decommissioning method statement. No construction and/or deployment of the parts of the Licensed Activities above may be undertaken prior to written approval from the Licensing Authority.
- 3.44.2** The Licence Holder must review and submit an updated Decommissioning Programme for the approval of the Licensing Authority at least **4 months** prior to any decommissioning work taking place. No decommissioning work can take place prior to written approval from the Licensing Authority.
- 3.44.3** The Licence Holder must ensure that any actions outlined in the Decommissioning Programme detailed in condition 3.44.1 and 3.44.2 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and approved in writing by the Licensing Authority prior to any changes being enacted.
- 3.44.4** The Licence Holder must ensure that all WTG, cables and associated infrastructure are decommissioned prior to the Licence End Date.

3.45 Compliance Report

The Licence Holder must produce and submit a report on compliance with the conditions in this Marine Licence for the approval of the Licensing Authority at least **2 months** prior to commencement of Licensed Activities. The report must identify where the monitoring has been or is to be undertaken and identify relevant plans and how conditions have been and are to be addressed. No construction and/or deployment of the parts of the Licensed Activities above may be undertaken prior to written approval from the Licensing Authority.

4 INTERPRETATION

In this Licence terms are as defined in section 115 of the Marine and Coastal Access Act unless otherwise stated.

- (a) **"2009 Act"** means the Marine and Coastal Access Act 2009;
- (b) **"Approved Application"** means the Marine Licence Application Form together with the Approved Supporting Documents;
- (c) **"Approved Supporting Documents"** means the documents supporting, or supplementary to, the Approved Application, submitted prior to the Licence Issue Date, listed in the Table at paragraph 2.3 above;
- (d) **"Commencement"** means the first undertaking of any Licensed Activities;
- (e) **"Force majeure"** may be deemed to apply when, due to stress of weather or any other cause, the master of a vessel determines that it is necessary to deposit the substances or articles because the safety of human life and/or of the vessel is threatened;
- (f) **"Licensed Activities"** means the activities authorised by this licence as specified in 2.1;
- (g) **"Licensed Area"** means the area within which Licensed Activities are authorised by this licence as specified in section 2.2;
- (h) **"Licence Holder"** means the person(s) or organisation(s) named in section 1.2 to whom this licence is granted;
- (i) **"Licence Period"** means the period beginning with the Licence Start Date and ending on the Licence End Date;
- (j) **"Licensing Authority"** means Natural Resources Wales acting on behalf of the Welsh Ministers;
- (k) **"Marine Enforcement Officers"** means the relevant officers appointed by Welsh Ministers under section 235 of the 2009 Act, contact details for whom are provided in section 5;
- (l) **"Marine Licence Application Form"** means the application form forming part of the application referred to in paragraph 1.1;

- (m) **“Method Statement”** means the Method Statement(s) forming part of the Approved Application or Approved Supporting Documents;
- (n) **“Works”** means any construction activities comprised in the Licensed Activities and, where the context permits, includes any plant, equipment or materials used to carry out those activities or operations but excludes monitoring, minor routine maintenance or other ongoing operational activities following completion of any construction activities;
- (o) all times shall be taken to be the time in Greenwich Mean Time (GMT) on any given day;
- (p) all co-ordinates shall be taken to be latitude and longitude decimal degree (WGS 84)
- (q) in the event of any discrepancy between the coordinates listed in paragraph 2.2 and the plan attached at Appendix 1, the coordinates shall take precedence.

5 CONTACTS

Except where otherwise indicated, the primary point of contact with the Licensing Authority and the address for returns, correspondence and requests for variations of the licence is:

Marine Licensing Team
Natural Resources Wales
Permitting Service
29 Newport Road
Cambria House
Cardiff
CF24 0TP

Tel: 0300 065 3000
Email: marinelicensing@naturalresourceswales.gov.uk

Welsh Government Marine Enforcement Officers may be contacted at:

Welsh Government
Suite 3
Cedar Court
Haven's Head Business Park
Milford Haven Pembrokeshire
SA73 3LS

Tel: 03000253500
Email: wfmccmpc@gov.wales

Appendix 1 WTG and semi-submersible platform parameters

Parameter	Minimum	Maximum
Wind Turbine Generators (WTGs)		
Number of Wind Turbine Generators (WTGs)	-	7
WTG Nameplate Rating	-	18 MW *
Swept Area (per turbine)	23,779m ²	45,996 m ²
Maximum Blade Tip Height (from mean sea level)	196m	270 m
Tower type and appearance	Tubular steel painted RAL 7035 (light grey) for tower from 15m above water line and RAL 1023 (traffic yellow) below	
Hub height (from mean sea level)	109 m	150 m
Rotor Diameter	174m	242 m
Rotor Speed	-	9.9
Air gap/blade tip clearance (from sea level to blade tip)	22 m	22 m
Semi-submersible platforms		
Number of columns per platform	3	3
Column diameter	9 m	22 m
Column centre to centre distance	55 m	100 m
Column height	25 m	32 m
Operating Draft (distance from keel to sea level)	12 m	17.4 m
Maximum dimensions (x3 sides)	89 x 96 x 77 m	112 x 123 x 96 m
Maximum footprint (per platform; base of hull assumed solid triangle)	3,478 m ²	4,264 m ²
Height above sea surface- operating conditions	10 m (to freeboard)	14.5 m (to freeboard)
Maximum excursion of hull from slack line position/neutral	-	50 m
Separation distance between WTGs (centre point)	1,000 m	3,500 m

*Theoretical maximum of 18MW WTG included to account for anticipated WTG technology development throughout Project design, noting this will be capped (devices downrated) to the agreed total export capacity of the Project of up to 100MW where necessary.

Appendix 2 Mooring system parameters

Parameter	Minimum	Maximum
Mooring System Parameters		
Configuration	Catenary	
Total number of mooring lines	-	35
Individual mooring line length	-	870 m
Radius of mooring (from platform hull to anchor)	500 m	800 m
Number of mooring clump (per line)	-	25
Number of mooring clump (total)	-	875
Mooring clump individual weight	-	20 tonnes
Total mooring clump footprint	-	3,500 m ²
Anchors & Foundations		
Drag Embedment Anchor		
Total number of Drag Embedment Anchors	-	63
Drag embedment anchors dimensions (L x W x H)	-	8.5 x 9 x 5 m
Total drag embedment anchor footprint	-	3,500 m ²
Drag embedment anchors weight	-	30 mT
Drag embedment anchors penetration depth (dependent on sediment thickness)	-	25 m
Suction Pile Anchor		
Total number of suction pile anchors	-	35
Suction pile anchor dimensions	-	6.5 m diameter 20 m length (incl. 2-3 m concrete block on top of pile)
Total suction pile anchor footprint	-	1,161 m ²
Suction pile anchor penetration	-	17 m
Driven Pile Anchor		
Total number of driven piles	-	35
Driven pile dimensions	-	2.5 m diameter 55 m length
Driven pile penetration	-	52 m
Total driven pile footprint	-	175 m ²
Hammer energy	-	800 kJ
Indicative piling duration (per driven pile)	-	150 minutes
Drilled Pile		
Total number of drilled piles	-	35
Drilled pile dimensions	-	2.5 m diameter 55 m depth
Drill penetration depth	-	52 m
Volume of drill arisings per pile	-	269.8 m ³
Total volume of drill arisings	-	11,340 m ³
Predicted footprint of drill arisings (m ²) (to a height of 1m)	-	11,340 m ²

Appendix 3: Cabling parameters

Parameter	Minimum	Maximum
Array Cable Parameters		
Number of Array Cables	-	10
Length of individual Array Cables (sections)	-	6,022 m
Total length of all Array Cables (dependent upon arrangement)	-	23.9 km
Diameter of individual Array Cables (including fibre optic)	130 mm	300 mm
Array Cable Rating	66kV	72.5 kV
Number of Hang-offs	-	20 (incl. 2 for export)
Swept area per Array Cables	-	3,750 m ²
Total swept area for all Array Cables	-	82,500 m ²
Area of seabed impacted via Array Cables on the seabed and/or cable protection (see below)	-	115,200 m ² Rock protection along all array cables from touchdown, incl. 2 x cable crossing
Cable crossings	-	2
Offshore Export Cable		
Number of Export Cables (including fibre optics)	-	2-single cable laying 2 circuits 'wrapped together' as a bundled solution, comprising on export cable route
Length of Export Cable	-	49 km
Diameter of individual Export Cable	130mm	300 mm
Number of Export Cable Joints	-	2
Target Depth of Burial	-	3 m
Percentage of offshore export cable requiring cable protection	-	16%
Area of seabed impacted via export cable protection	-	83,380 m ²
Identified cable crossings	-	2
Horizontal Directional Drilling (HDD)		
Dimensions of landfall/Transition Joint Bays (TJBs) (m ²)	-	324 m ² (up to two 162 m ² TJB)
Intertidal cofferdam area (m ²) (if required)	-	1000 m ²
Offshore floatation pits (m ²)	-	160 m (l) x 45 (w) x 5 m (d)
Temporary floatation pit dimensions	-	160 m (l) x 45 (w) x 5 m (d)
Temporary floatation pit area	-	7,200 m ²
HDD exit point depth	3 m LAT	5 m LAT
Volume of drilling mud to be generated (m ³)	-	2,400 m ³
Duration of Activities (West Angle Bay N)	-	32 weeks
Duration of Activities (West Angle Bay S)	-	32 weeks
Open-cut Trenching		
Open-cut trench length (m)	-	650 m

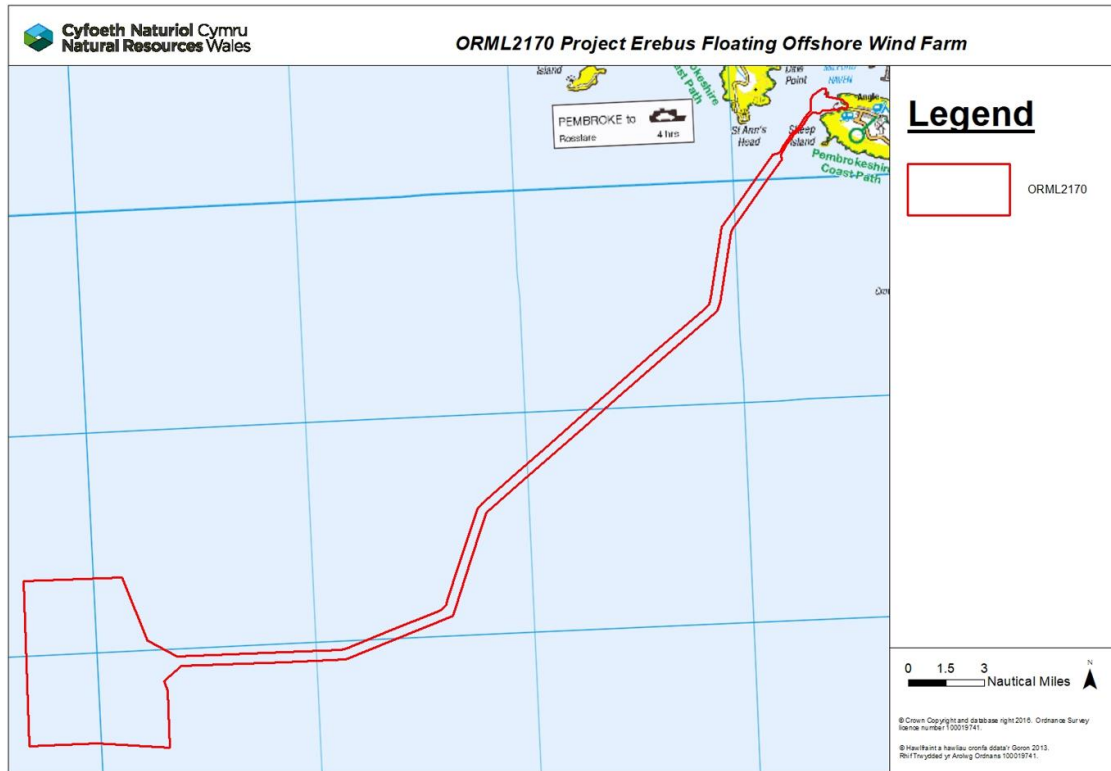
Parameter	Minimum	Maximum
Open-cut trench width (m)	-	3 m
Open-cut trench depth (m)	-	3 m
Width of open-cut trench plus working area (open-cut trench plus areas where side-cast material may be stored and vehicle access needed)	-	10 m
Area of disturbance from open-cut trench (m ²)	-	1950 m ²
Area of disturbance from open-cut trench plus working area (m ²)	-	6,500 m ²
Temporary flotation pit dimensions	-	160 m (l) x 45 (w) x 5 m (d)
Temporary flotation pit area	-	7,200 m ²
Duration of Activities	-	15 weeks
Cable (Export and Array) Protection		
Total Array Cable Protection (rock berm)	-	Entire array cable in contact with the seabed protected (includes 2 cable crossings): Length of cables requiring protection- 22,500 m (crossings = 300 m) Width of protection – 5 m, except at cable crossings (14 m) Area- 115,200 m ²
Rock protection at HDD exit point (landfall)	-	Length of berm- 21 m Width of berm- 5 m Height of berm- 1.2 m Area= 105 m ²
Total Export Cable Protection Area (m ²) (rock berm)	-	83,380 m ² (including 1 cable crossing)
Sub-total	-	198,685 m²

Appendix 4 Project Erebus Boundary Coordinates

Latitude	Longitude	Latitude	Longitude	Latitude	Longitude
51.6860	-5.1067	51.5445	-5.2998	51.6561	-5.1675
51.6851	-5.1076	51.5326	-5.3215	51.6661	-5.1561
51.6855	-5.1112	51.5218	-5.3415	51.6664	-5.1558
51.6846	-5.1124	51.5203	-5.3439	51.6670	-5.1518
51.6843	-5.1230	51.5187	-5.3448	51.6680	-5.1506
51.6834	-5.1246	51.4978	-5.3556	51.6686	-5.1500
51.6835	-5.1292	51.4782	-5.3659	51.6700	-5.1489
51.6835	-5.1294	51.4681	-5.4055	51.6703	-5.1485
51.6834	-5.1296	51.4604	-5.4360	51.6706	-5.1482
51.6816	-5.1326	51.4594	-5.4762	51.6719	-5.1467
51.6811	-5.1333	51.4578	-5.5440	51.6722	-5.1464
51.6806	-5.1340	51.4577	-5.5440	51.6733	-5.1453
51.6806	-5.1340	51.4515	-5.5555	51.6738	-5.1447
51.6782	-5.1362	51.4477	-5.5530	51.6749	-5.1433
51.6778	-5.1368	51.4243	-5.5517	51.6749	-5.1433
51.6774	-5.1373	51.4260	-5.5993	51.6755	-5.1423
51.6757	-5.1400	51.4250	-5.6438	51.6758	-5.1418
51.6753	-5.1406	51.4923	-5.6477	51.6763	-5.1410
51.6749	-5.1413	51.4938	-5.5829	51.6780	-5.1383
51.6743	-5.1422	51.4681	-5.5663	51.6784	-5.1378
51.6733	-5.1435	51.4617	-5.5468	51.6787	-5.1374
51.6728	-5.1441	51.4634	-5.4765	51.6787	-5.1374
51.6717	-5.1452	51.4643	-5.4395	51.6810	-5.1352
51.6717	-5.1452	51.4648	-5.4357	51.6810	-5.1352
51.6714	-5.1455	51.4719	-5.4080	51.6810	-5.1352
51.6701	-5.1470	51.4800	-5.3759	51.6817	-5.1345
51.6699	-5.1473	51.4809	-5.3730	51.6823	-5.1336
51.6696	-5.1476	51.4829	-5.3702	51.6831	-5.1322
51.6679	-5.1491	51.4844	-5.3694	51.6840	-5.1307
51.6675	-5.1494	51.4991	-5.3618	51.6841	-5.1310
51.6664	-5.1506	51.5221	-5.3498	51.6888	-5.1310
51.6643	-5.1501	51.5242	-5.3469	51.6906	-5.1293
51.6579	-5.1574	51.5357	-5.3259	51.6932	-5.1234
51.6538	-5.1622	51.5475	-5.3042	51.6932	-5.1209
51.6391	-5.1789	51.5593	-5.2824	51.6901	-5.1207
51.6367	-5.1816	51.5711	-5.2606	51.6889	-5.1105
51.6350	-5.1833	51.5845	-5.2361	51.6875	-5.1075
51.6061	-5.1903	51.6040	-5.2001	51.6875	-5.1075
51.6028	-5.1924	51.6057	-5.1976	51.6875	-5.1075
51.5819	-5.2309	51.6082	-5.1964	51.6870	-5.1065
51.5681	-5.2563	51.6369	-5.1893	51.6860	-5.1067
51.5563	-5.2780	51.6414	-5.1842		

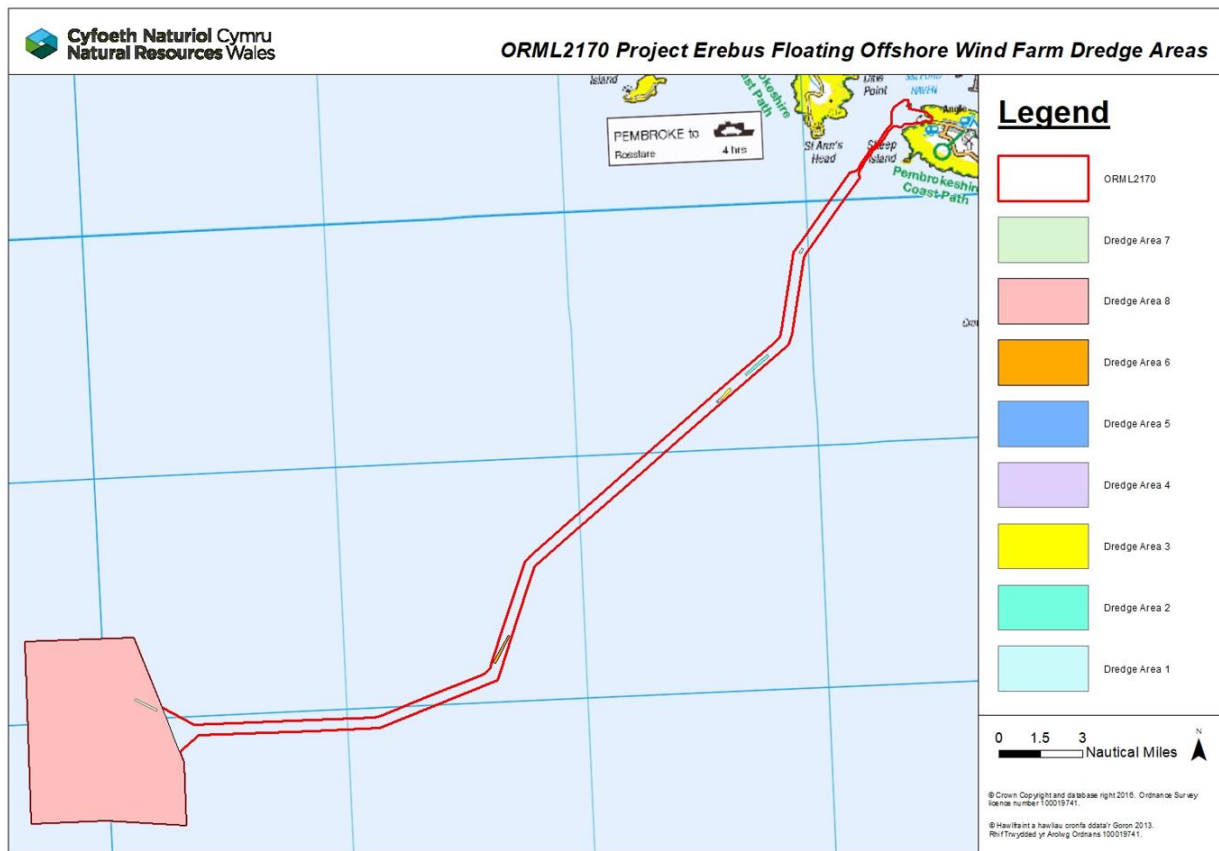
Licence Number: ORML2170

Appendix 5 Location of Project



Licence Number: ORML2170

Appendix 6 Location of Dredge Areas



Appendix 7 Location of Disposal Areas

