Morecambe Offshore Windfarm: Generation Assets

Examination Documents

Volume 9

The Applicant's Comments on Deadline 4 Submissions by Interested Parties

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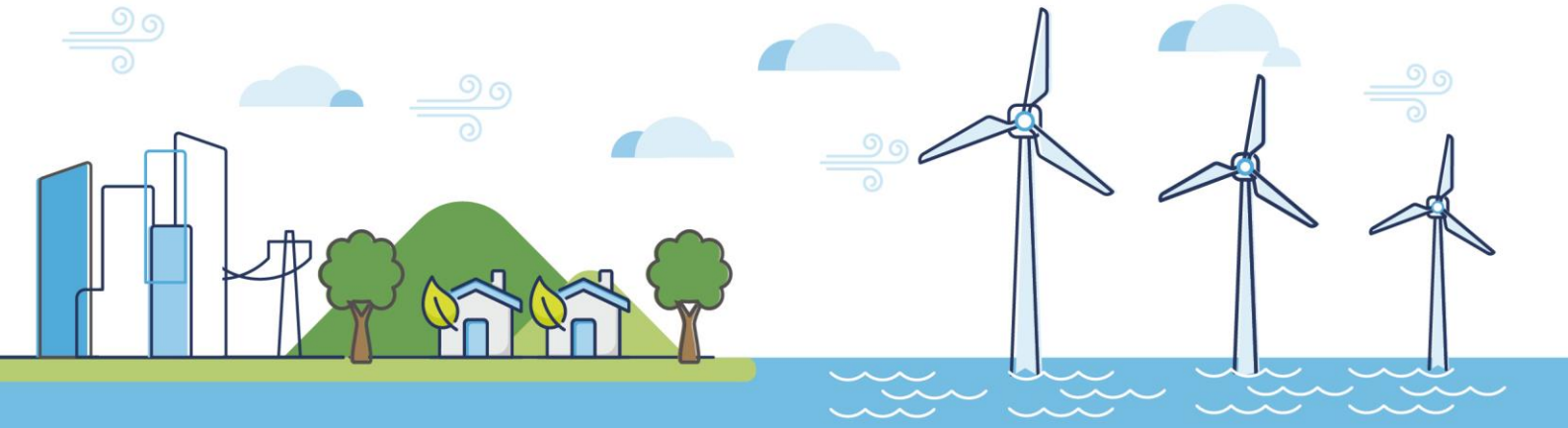

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Glossary of Acronyms

ADD	Acoustic Deterrent Devices
AEoI	Adverse Effects on Integrity
AL	Action Level
ALARP	As Low As Reasonably Practicable
AltMoC	Alternative Means of Compliance
AMC	Acceptable Means of Compliance
BML	Bodorgan Marine Limited
CAA	Civil Aviation Authority
CEA	Cumulative Effects Assessment
CIMP	Compensation Implementation and Monitoring Plan
CIS	Celtic Irish Sea
CMS	Construction Method Statement
CNP	Critical National Priority
CSIP	Cable Specification and Installation Plan
DCO	Development Consent Order
dML	deemed Marine Licence
E	East
EDR	Effective Deterrence Radius
EIA	Environmental Impact Assessment
EPP	Evidence Plan Process
ES	Environmental Statement
ETG	Expert Topic Group
ExA	Examining Authority
ExQ1	Examining Authorities written Questions
ExQ2	Examining Authorities Second Written Questions
FLCP	Fisheries Liaison and Co-existence Plan
FLO	Fisheries Liaison Officer
GHG	Greenhouse Gas
GM	Guidance Material
HE	Historic England
HRA	Habitats Regulations Assessment
IMC	Instrument Meteorological Conditions

INNS	Invasive Non-Native Species
IoM	Isle of Man
IoM TSC	Isle of Man Territorial Seas Committee
IP	Interested Parties
IPMP	In Principle Monitoring Plan
JNCC	Joint Nature Conservation Committee
LBBG	Lesser Black Backed Gull
MCA	Maritime and Coastguard Agency
MHWS	Mean High Water Springs
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
MNEF	Marine Navigation Engagement Forum
MU	Management Unit
NAS	Noise Abatement System
NE	Natural England
NFFO	National Federation of Fishermen's Organisation
NIGFS	Northern Irish Ground Fish
NIHLS	Northern Irish Herring Larvae Survey
NPS	National Policy Statement
NRW	Natural Resources Wales
NSIP	Nationally Significant Infrastructure Project
NSN	National Site Network
NUI	Normally Unmanned Installations
OFTO	Offshore Electricity Transmission
OOMP	Offshore Operation and Maintenance Plan
OWF	Offshore Windfarm
PEIR	Preliminary Environmental Information Report
PEMP	Project Environmental Management Plan
PTS	Permanent Threshold Shift
PVA	Population Viability Analysis
REWS	Radar Early Warning Systems
RIAA	Report to Inform Appropriate Assessment
RR	Relevant Representation

RSPB	Royal Society for the Protection of Birds
RTD	Red-throated diver
SAC	Special Area of Conservation
SL	Stena Line
SMRU	Sea Mammal Research Unit
SoCG	Statement of Common Ground
SoS	Secretary of State
SPA	Special Protection Areas
SSSI	Site of Special Scientific Interest
TCE	The Crown Estate
TH	Trinity House
TTS	Temporary Threshold Shift
UK	United Kingdom
UWSMS	Underwater Sounds Management Strategy
UXO	Unexploded ordnance
VHF	Very High Frequency
VTMP	Vessel Traffic Management Plan
WCS	Worst Case Scenario
WFA	Welsh Fishermen's Association
WSI	Written Scheme of Investigation
WTG	Wind Turbine Generators

Glossary of Unit Terms

dB	decibel
km	kilometre
nm	nautical mile

Glossary of Terminology

Applicant	Morecambe Offshore Windfarm Ltd
Agreement for Lease (AfL)	Agreements under which seabed rights are awarded following the completion of The Crown Estate tender process.
Evidence Plan Process (EPP)	A voluntary consultation process with specialist stakeholders to agree the approach, and information to support, the Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA) for certain topics. The EPP provides a mechanism to agree the information required to be submitted to the Planning Inspectorate as part of the Development Consent Order (DCO) application. This function of the EPP helps Applicants to provide sufficient information in their application, so that the Examining Authority (ExA) can recommend to the Secretary of State whether or not to accept the application for examination and whether an appropriate assessment is required.
Expert Topic Group (ETG)	A forum for targeted engagement with regulators and interested stakeholders through the EPP.
Generation Assets (the Project)	Generation assets associated with the Morecambe Offshore Windfarm. This is infrastructure in connection with electricity production, namely the fixed foundation wind turbine generators (WTGs), inter-array cables, offshore substation platform(s) (OSP(s)) and possible platform link cables to connect OSP(s).
Other infrastructure projects	The offshore windfarm projects detailed in Appendix D of the Rule 6 Letter (PD-007).
Inter-array cables	Cables which link the WTGs to each other and the OSP(s).
Morgan and Morecambe Offshore Wind Farms: Transmission Assets	The Transmission Assets for the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm. Also referred to in this report as the Transmission Assets, for ease of reading.
Offshore substation platform(s)	A fixed structure located within the windfarm site, containing electrical equipment to aggregate the power from the WTGs and convert it into a more suitable form for export to shore.
Platform link cable	An electrical cable which links one or more OSP(s).
Windfarm site	The area within which the WTGs, inter-array cables, OSP(s) and platform link cables will be present.

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1 Introduction

1. This document presents the Applicant's comments on Deadline 3 submissions by Interested Parties (IPs) at Deadline 4. These include the following:

   - Historic England (REP4-063): **Table 2.1**
   - Marine Management Organisation (REP4-064): **Table 2.2 - Table 2.5**
   - Natural England (REP4-065 – REP4-066): **Table 2.6 – Table 2.7**
   - Natural Resources Wales (REP4-074): **Table 2.8**
   - Bodorgan Marine Limited (REP4-068): **Section 2.5**
   - Eversheds Sutherland on behalf of Spirit Energy (REP4-069): **Section 2.6**
   - Harbour Energy (REP4-071): **Table 2.9**
   - Orsted IPs (REP4-075 – REP4-077): **Section 2.8**

2. REP4-067 is Natural England's Risk and Actions Log and has been responded to in a separate document, submitted alongside this document at Deadline 5 (Document Reference 9.58).

3. Please note, the Applicant has responded to the National Federation of Fishermen's Organisation (NFFOs) Deadline 4 submission 'Late Deadline 3 Submission - Response to Examiners Questions (ExQ1's) in The Applicant's Comments to Interested Parties Responses to ExQ1 (REP4-060).

4. The Applicant has responded to Eversheds Sutherland on behalf of Spirit Energy (REP4-069) in a separate document, submitted alongside this document at Deadline 5 (Document Reference 9.59).

5. As the owner of the Morecambe Offshore Windfarm Generation Assets, Morecambe Offshore Windfarm Ltd is the named undertaker that has the benefit of the Development Consent Order (DCO). References in this document to obligations on, or commitments by, 'the Applicant' are given on behalf of Morecambe Offshore Windfarm Ltd as the undertaker of Morecambe Offshore Windfarm Generation Assets.

2 Comments on Deadline 4 Submissions by IPs

6. The Applicant's comments on Deadline 4 submissions by IPs are provided in the following sections.

2.1 Historic England (REP4-063)

Table 2.1 The Applicant's comments on Historic England's Deadline 4 submission (REP4-063)

ID	Deadline 4 comment	Applicant response (if required)
REP4-063-01	We offer this submission in reference to the In Principle Monitoring Plan – Revision 02 (Volume 6) (Tracked) PINs Examination Ref: REP3-046. We note the inclusion of text in section 2.9 (Offshore archaeology and cultural heritage) in paragraph 78 and we hereby confirm our satisfaction with this revision.	The Applicant welcomes this response.

2.2 Marine Management Organisation (REP4-064)

7. The Marine Management Organisation's (MMO's) Deadline 4 submission is broken down into the following:

- Section 1 of REP4-064 provides the MMO's *Response to Examiner's Questions (EXQ1),* which provides additional responses to their Deadline 3 submission (REP3-086) and mainly relates to the Underwater Sound Management Strategy (UWSMS), the draft Marine Mammal Mitigation Protocol (MMMP), and micrositing. This is responded to, where appropriate, in **Table 2.2. Please note the Applicant has not duplicated rows which were 'greyed out' by the Marine Management Organisation (MMO) as these were responded to in full at Deadline 4 by the Applicant and the MMO considers these to be either resolved or has no further comments to make.**
- Section 2 of REP4-064 provides further comments from the MMO on PD1-011 (The Applicant's response to Relevant Representations). This is responded to, where appropriate, in **Table 2.3**
- Section 3 - 6 of REP4-064 (Comments from the MMO on the Applicant's Deadline 2 submissions, Deadline 3 submissions, the Draft DCO and deemed Marine Licence (DML) and comments on Deadline 3 submissions from other stakeholders) are responded to in **Table 2.4**
- Section 7 of REP4-064 (Response to Rule 17 letter) is responded to, where required, in **Table 2.5**

Table 2.2 The Applicant's response to the MMO's further responses to ExQ1 (Section 1 of REP4-064)

ExQ1	Question	MMO response	Applicant response (if required)
General and Cross-topic Questions (GEN)			
1GEN1	**National Planning Policy Framework** A replacement National Planning Policy Framework was published on 12 December 2024. All parties are invited to make any comments they wish as to how any changes within this document	The MMO has reviewed the Applicant's response to this question and notes that the Applicant does not consider the changes in the document to affect the consideration of the proposed development. After reviewing the updates in relation to the MMO's remit, the MMO agrees that none of the updates impact the Application.	The Applicant welcomes this response.

ExQ1	Question	MMO response	Applicant response (if required)
	affect the consideration of the Proposed Development.		
Environmental Statement (General)			
1GEN20	**European Protected Species Licensing** The Applicant's response to Actions from PM and ISH1 (REP1-086) paragraph 24 notes that the regulations surrounding EPS licensing are due to be updated at the end of 2024. Can NE advise on the scope of these changes and highlight potential matters that could have implications for the consenting process.	Previously the MMO advised that this question is directed to NE. However, these comments are likely in relation to the Unexploded Ordnance (UXO) and the EPS licence that will be required is provided by the MMO in consultation with Natural England (NE). The MMO has reviewed NE's response (REP3-092) submitted at Deadline 3 and note that NE advise that this question be directed to the MMO. The MMO would highlight that there is a Department for the Environment, Food and Rural Affairs (DEFRA) policy paper has been published in relation to underwater noise along with papers on UXO clearance. The MMO has included the 'Reducing marine noise' paper in Annex 1 below. The MMO has discussed the potential changes with the Applicant and understands more information is being provided at Deadline 4 on the commitment to Noise Abatement Systems (NAS). Please note that this does not resolve all UWN issues please see Section 3.10 below for further information.	In line with the latest joint position statement (Joint Nature Conservation Committee (JNCC), Natural England and Cefas, 2025) and the marine noise policy paper (United Kingdom (UK) Government and Defra, 2025), the Applicant has committed to primary or secondary noise reduction measures (e.g. Noise Abatement System (NAS)) and commits to implement NAS for its worst case scenario (i.e., maximum strike rate and maximum hammer energy) and to review the final mitigation requirements based on the final Project design. The following documents were updated and submitted at Deadline 4 to reflect this change: ▪ Chapter 11 Marine Mammals (REP4-011) ▪ Appendix 11.2 Marine Mammal Information and Survey Data (REP4-015) ▪ Appendix 11.3 Marine Mammal Unexploded Ordnance Assessment (REP4-017)

ExQ1	Question	MMO response	Applicant response (if required)
			▪ Outline Underwater Sound Management Strategy (UWSMS) (REP4-049) ▪ Draft Marine Mammal Mitigation Protocol (MMMP) (REP4-027) Further information on the potential reduction in impact ranges, upon the application of NAS for the worst case, is submitted as an Appendix to the Outline UWSMS (Outline Underwater Sound Management Strategy_Rev 03 Clean) alongside this document at Deadline 5. The UWSMS has further been updated in light of discussion with Natural England and Examiners Questions (ExQ2s) regarding the different scenarios where NAS would be required without any further design refinement. This commitment and the agreement of required measures secured through the UWSMS (REP4-049).
Need and assessment			
1GEN21	**Application of s104 of the PA2008** In paragraph 171 of the revised Planning, Development Consent and Need Statement (REP1-010) the Applicant states “NPS EN-5 sets out Policies concerning	The MMO has reviewed the comments and updated documents the Applicant provided at Deadline 3 and has no comments to make.	The Applicant welcomes this response.

ExQ1	Question	MMO response	Applicant response (if required)
	electricity transmission distribution systems. It is, therefore, not relevant to the Project". However, NPS EN-5 is referenced in both ES Chapters 15 (paragraph 15.20, (REP1-034)) and 19 (paragraph 19.28, (REP1-040)). a) Having regard to the elements of offshore wind infrastructure identified within paragraph 2.8.4 of NPS EN-3, all parties are invited to give their views as to whether, for the purposes of sections 104(2)(a) or 104(3) of the PA2008, NPS EN-5 should be considered as 'relevant national policy' or whether it should be considered to be an 'other matter' for the purposes of section 104(2)(d) of the PA2008. b) Should any party hold the view that it should be regarded for the purposes of sections 104(2)(a) or 104(3) of the PA2008, they are asked to explain why they hold that view and identify any matters that should be particularly taken into account, providing references as necessary.		

ExQ1	Question	MMO response	Applicant response (if required)
1GEN24	**Decommissioning** ES Chapter 7, Table 7.2 (page 49) (REP2- 008) refers to a decommissioning plan. Could the Applicant please explain what would be in the plan and how the content of the plan would be secured?	The MMO believes that the Applicant did not fully answer the question other than to say it will be secured in the DCO. The MMO will provide an update on this week commencing 03 March as part of an additional submission. The MMO notes the ExA may not accept an additional submission and if so the information will be provided at Deadline 5. However, the MMO will work with the Applicant to try and agree a position for Deadline 5. The MMO does note that this may not be agreed by the end of Examination.	As per the Applicant's response in ID WR-097-166 of REP2-028, the Applicant does not consider that an outline version of a Decommissioning Programme (as secured in Development Consent Order (DCO) requirement 10) is required to be submitted pre-consent. During the post-consent stage when more accurate details of the Project design are known, a decommissioning programme will be prepared based on those details. The Applicant would also note that guidance for industry issued by the Department for Business, Energy and Industrial Strategy in 2019 entitled "Decommissioning of offshore renewable energy installations under the Energy Act 2004: guidance notes for industry", sets out the framework for the content of the Decommissioning Programme. The Applicant is also aware of the emerging need for the industry to plan for decommissioning given the age of some of the UK's oldest offshore wind farms. Recent guidance from the UK Offshore Energies Association (Designing

ExQ1	Question	MMO response	Applicant response (if required)
			for Decommissioning of Offshore Wind, 2024) is a useful but early guide to help developers (and stakeholders) understand and navigate the process. Further emerging guidance and experience from wind farms ahead of Morecambe in their decommissioning will be included within any final decommissioning programme. The Applicant has not received further Project specific input on this item from the Marine Management Organisation (MMO) prior to Deadline 5. An email was received from the MMO on 11 March 2025 with links to condition wording used in a submission on a project located off the East Coast without context as to what would or would not be proposed for the Project. Therefore, the Applicant has not been able to provide a comment on the MMO's response. The Applicant will continue to engage with MMO on this matter but the Applicant is unlikely to agree this through the Examination.

ExQ1	Question	MMO response	Applicant response (if required)
2. Biodiversity, Ecology and Marine Processes (BEM)			
Marine Sediment and Water Quality			
1BEM20	**Disposal of sandwave material** In the MMO's RR (RR-047) at paragraph 4.3.10 it says that the Applicant "… most likely would have to apply to the MMO to designate the area as a disposal site …". In its response at RR-047-53 (PD1-011), the Applicant argues that this is unnecessary as "… the removal of and disposal of inert material is included as associated development …" and is therefore authorised within the Order limits. The MMO's D2 response (REP2-035) says that it is currently in the process of designating disposal sites and states that "sites should be secured within the DML. Once this has been completed the MMO will inform the Applicant and request that this is updated in the DML as part of the Examination process.". At what point in the Examination does the MMO envisage being in a position to inform the Applicant?	The MMO met with the Applicant on 14 February and were provided the most up to date shape file to enable the disposal site to be designated. The MMO has sent this to our scientific advisors to complete the final actions within the designation. The MMO believe this information will be provided prior to Deadline 5 and the MMO will share this information with the Applicant as soon as we have received it to ensure the disposal site reference number is secured within the DML. If there are any issues (which the MMO believes is unlikely at this point) and disposal sites are not approved within the Examination process the MMO will provide the Applicant updated wording before Deadline 5 to ensure there is a mechanism within the DML to confirm disposal sites	The Applicant received an email from the MMO on 11 March 2025 with suggested condition wording providing either a placeholder for an identified disposal ground or with wording to be used in the event that a disposal ground was not designated within the examination period. However, given the order limits are the same at the disposal area the Applicant does not consider any change to the DCO is required, and the Applicant notes that the wording currently included in its deemed Marine Licence (DML) (Schedule 6, Part 3, Condition 7(5)) is already in the form of wording suggested by the MMO in the event that a disposal ground was not designated within the examination period. The Applicant will continue to engage with MMO on this matter.

ExQ1	Question	MMO response	Applicant response (if required)
1BEM23	**Operation and maintenance: underwater noise and vibration** Operational vibration impacts were scoped out of assessment on the basis of evidence provided which related to monitoring studies undertaken for existing wind farms with relatively small turbines. However, paragraph 9.313 of ES Chapter 9 (REP2-012) says that "… wind-induced vibration at high wind speeds, can be transmitted through the tower and foundations and radiate into the water column.". Given the larger turbines to be used on this project: a) is this evidence relating to smaller turbines relevant; and b) does this alter the Applicant's assessment of noise and vibration impacts?	The MMO agrees that operation noise and vibration has no significant impact to the benthic ecology.	The Applicant welcomes this response.
Fish and Shellfish ecology			
1BEM24	**Mitigation: timing of works** The MMO (REP2-035) has indicated that whilst an Underwater Sound Management Strategy (REP2-026) has been provided, a condition limiting piling during the cod spawning period is still necessary and will	The MMO had a meeting with the Applicant on 14 February to discuss outstanding issues with our scientific advisors. The Applicant explained that further commitment and modelling will be provided at Deadline 4 in relation to the use of NAS. The MMO explained that full spatial modelling would be required to remove a seasonal restriction requirement on the DML. The	The Applicant considers that the updated Outline UWSMS submitted at Deadline 4 (REP4-049) aligns with the MMO position on the required mitigation for effects on cod spawning. The Applicant can agree to the principles of the mitigation

ExQ1	Question	MMO response	Applicant response (if required)
	supply updated wording 'in due course'. Can the MMO confirm when the revised wording will be available.	Applicant explained that this would not be provided. The Applicant understood the MMO's position that without this modelling there is not enough evidence to remove the requirement for the seasonal restriction to be included on the face of the DML. The MMO believes that no new information can be provided by the Applicant during the remainder of Examination that will remove the requirement for a piling restriction on the face of the DML. However, there is still further discussion on the refinement of the seasonal restriction dates of the piling restriction and the MMO understands further evidence will be provided in relation to this at Deadline 4. The MMO and its scientific advisors are still reviewing all information provided at Deadline 3 and understands that some information will be superseded by Deadline 4 submissions. The MMO is aiming to have an update by early March and will share this with the Applicant as soon as possible to enable any further changes to documents to be included at Deadline 5. To clarify, the MMO and the Applicant are still working on the specific cod spawning period and the MMO believes this will be **agreed by the end of Examination**. **The outstanding point that will be not agreed – material impact on the Applicant's Statement of Common Ground (SoCG) will be the need for the seasonal restriction on the face of the DML.** The Applicant believes there is no need as this is within the Underwater sound management strategy	requested, i.e. the use of a piling seasonal restriction or the reduction of impact ranges, potentially with the application of noise reduction systems. The Applicant considers that the UWSMS is sufficient to control noise mitigation and that a condition on the face of the DCO would duplicate this mechanism and is not therefore necessary. Given the design refinement that would take place post consent, as the MMO note, the Applicant does not consider it appropriate to provide detailed further modelling at this stage on the worst case design, beyond that provided in the Environmental Statement (ES). Following discussion with the MMO on 4 March 2025, The Applicant notes that the additional impact ranges upon the application of NAS, (provided in the UWSMS at Deadline 5) while demonstrating its potential effectiveness did not provide sufficient detail for the MMO to remove their request for a seasonal restriction condition. The Applicant, noting 2BEM3 (ExQ2), has updated the wording provided by the MMO. This wording has been agreed with the

ExQ1	Question	MMO response	Applicant response (if required)
		(UWSMS) and the plan is the correct mechanism to manage this. The MMO's position is that not enough evidence has been provided to provide the confidence that a seasonal restriction can be removed at this point in the Examination and is unlikely to be provided until the post consent stage when the project has been refined. Without evidence the MMO's position is a seasonal restriction should be on the DML, this is the appropriate place for a restriction to be in the absence of evidence. However, the MMO agrees that the UWSMS can be used as a mechanism to refine or remove the restriction post consent. This would be by providing further evidence and detailed mitigation can be put in place. The MMO believes that the agreed seasonal restriction is on the face of the DML with the UWSMS being able to be submitted to remove/change this requirement post consent. This allows the MMO to be confident that a restriction will be in place in the first instance and shows that the Applicant has to provide evidence and further mitigation once details are known post consent through the UWSMS. The condition below is the most up to date condition, XX has been included as the dates of the condition are still in discussion and will be refined by the end of Examination. ***Underwater Sound Management Strategy*** 1. *— No piling associated with the authorised development may be undertaken between XX to*	MMO, should the ExA or the Secretary of State consider it necessary to be included on the face of the DCO. The updated wording of this condition is reflected in the dDCO submitted at Deadline 5, if the Examining Authority (ExA) considers this necessary.

ExQ1	Question	MMO response	Applicant response (if required)
		XX inclusive, unless otherwise agreed in writing by the MMO. 2. *If activities are deemed necessary in this period and to confirm any additional mitigation requirements an underwater sound management strategy for those activities, which accords with the outline underwater sound management strategy, must be submitted to and approved in writing by the MMO in consultation with the relevant statutory nature conservation body.* 3. *The underwater sound management strategy must be submitted to the MMO no later than six months prior to the commencement of the relevant activities unless otherwise agreed in writing by the MMO.* 4. *The piling activities must be carried out in accordance with the approved unless otherwise agreed in writing by the MMO.*	
Marine Mammals			
1BEM40	**Piling activity in the Irish Sea** Annex 1, Table 2 of the MMO D2 representation highlights that the proposed Morecambe OWF piling duration is assumed to be 37 days (assuming 1 foundation per day). The assumption is 35 days each for the larger Morgan and Mona schemes. Explain why Morecambe has a longer piling	The MMO has reviewed the Applicant's response. The MMO is content that the project has assessed for one pile to be constructed per day. This is 35 monopiles for the turbine foundations and two monopiles for the OSP foundations. The MMO has no further comments on this.	The Applicant welcomes this response.

ExQ1	Question	MMO response	Applicant response (if required)
	duration than the two larger schemes.		
1BEM42	**Draft Marine Mammals Mitigation Protocol (dMMMP): soft-start procedures: breaks in piling** Section 3.1.4 of the dMMMP (APP-149) deals with breaks in piling and permits a reduced soft-start procedure provided that there are no marine mammals within the monitoring area. At paragraph 3.1.2 of it RR (RR-047), the MMO says that "If a watch has been kept during the piling operation, the Marine Mammal Observer or Passive Acoustic Monitoring Operative should be able to confirm the presence or absence of marine mammals, and it may be possible to commence the soft-start immediately. However, if there has been no watch, the complete pre-piling search and soft-start procedure should be undertaken ..." in accordance with the guidance, requesting that the guidance be adhered to. The Applicant's response at RR-047-27 (PD1-011) notes that "the wording proposed by the	The MMO and the Applicant are still in discussion on this point. The MMO notes that discussions on soft start do sometimes take place at the post consent stage during the condition discharge process. The MMO believes this can be resolved prior to Deadline 5.	The Applicant notes the guidance on breaks in piling (issued in 2010) does not reflect the level of mitigation now required under the new January 2025 guidance, The draft MMMP was updated to reflect this with the following text at Deadline 4 (REP4-027): "*The final protocol for breaks in piling will be agreed during the finalisation of the MMMP through consultation alongside the Project final design and considering mitigation measures applied. It is noted that the current JNCC guidance (2010) requires soft start procedures to be re-established after a break longer than 10 minutes, however this does not consider noise reduction methods and there may be new guidance available at the time the MMMP is updated post-consent (noting the aim to reduce the overall pilling duration).*" It is considered appropriate to agree breaks in piling post consent in line with latest guidance and in view of the final Project design and mitigation applied. This has been discussed with, and acknowledged

ExQ1	Question	MMO response	Applicant response (if required)
	Applicant has previously been agreed for other offshore windfarm projects, including Dogger Bank A and Dogger Bank B … finalisation of wording … would be undertaken post-consent …". Could the Applicant and the MMO jointly consider whether the wording of the dMMMP, particularly paragraph 143, needs updating, and if so, could it please be so updated?		by, Natural England and the MMO and the Applicant expects feedback on the approach at Deadline 5 with the view that the matter can be resolved by the end of examination (with wording agreed in the final submission of the draft MMMP at Deadline 6 if any further changes are required).
5. Commercial Fisheries (CF)			
1CF3	**In Principle Monitoring Plan - Landings Data and Monitoring** Paragraph 13.302 of ES Chapter 13 (APP-050) states that the IPMP includes for the monitoring of commercial fisheries data pre, during and post construction. Paragraph 39 of the IPMP states that this is likely to be managed outwith of the IPMP. Table 2.5 of the IPMP (APP-148) states that monitoring would be carried out for a minimum period of 5 years and does not include monitoring during or following decommissioning. Assuming an approximate construction period of 2.5 years, it is assumed that	The MMO is content with the Applicant's response. The MMO is still reviewing this with or scientific advisors and will provide any updates to the Applicant to be taken into account in Deadline 5 submissions. d) The MMO believes as long as there is reference to the monitoring within the In Principle Monitoring Plan (IPMP) the MMO is content that the detail of monitoring is captured within the FLCP. Those present as part of the FLCP are the most appropriate interested parties to agree the monitoring. g) The MMO believes that any monitoring required at the decommissioning stage will be refined from the results of the construction/post construction monitoring, and this would be set out within the decommissioning programme.	The Applicant welcomes this response.

ExQ1	Question	MMO response	Applicant response (if required)
	pre and post construction monitoring would therefore equate to approximately 1.25 years each. Please also see ExQ1GEN11Error! Reference source not found. To the Applicant: a) Can the Applicant explain why a commitment to monitoring landings data is proposed to sit outwith the IPMP and, if so, how would this be secured? b) Rather than sit outwith of the IPMP, could the IPMP and/ or the oFLCP be amended to secure this and if not, why not? c) Can the Applicant explain why monitoring of landings data is not proposed during or post decommissioning given the potential impact of activities during decommissioning have been assessed as being the same as those during construction? To address this can the IPMP be amended to make clear monitoring would be carried out during and post decommissioning and for how long? Other IPs:		

ExQ1	Question	MMO response	Applicant response (if required)
	d) Do any other IPs have any comments or views on how the commitment to monitoring should be secured? e) Is monitoring on landing data sufficient? f) Could NE confirm whether 1.25 years of data would be sufficient to evaluate the effect of the construction and operation of the proposed development on the fisheries resources at or near the site, or whether a longer post construction monitoring period is necessary. g) Should monitoring be extended to include during and post decommissioning activities and if so, can other IPs explain with reasons how long it is considered such monitoring would be required following completion of the works?		
7. Draft Development Consent Order (REP2-002) (DCO)			
1DCO1	**Transfer of benefit of Order** Without concluding on the matter, in order to ensure that the MMO is satisfied as to the drafting of Article 7, could it provide a revised draft of Article 7, and also set out any other associated	The MMO provided comments in Section 3.2 of the MMO's Deadline 3 submission (REP3-085). The MMO is reviewing the Applicant's response (REP3-069) and any comments submitted at Deadline 4 will provide further comments week commencing 03 March as part of an additional submission. The MMO notes the ExA may not accept an additional submission and if so the information will be	The Applicant has not received further Project specific input on this item from the MMO prior to Deadline 5. An email was received from the MMO on 11 March 2025 with links to condition wording used in a submission on a project

ExQ1	Question	MMO response	Applicant response (if required)
	changes to the dDCO it would consider appropriate, were the SoS to conclude that they did not wish to include transfer of the benefit of the DML within the Order.	provided at Deadline 5. However, the MMO will work with the Applicant to try and agree a position for Deadline 5. The MMO does note that this is likely to be not agreed – material impact at the end of Examination.	located off the East Coast without context as to what would or would not be proposed for the Project. Therefore, the Applicant has not been able to provide a comment on the MMO's response. The Applicant acknowledges this matter is likely to be not agreed at the end of Examination. The Applicant does not consider this to be a material impact, given the MMO has consistently taken the approach it is advocating here but that the Secretary of State has not agreed with it in granting development consent for recent offshore wind projects.
Schedule 6- Deemed Marine Licence			
1DCO7	**Pre-construction plans and documentation** (Schedule 6, Part 2, condition 9(1)(c)) Could the Applicant and NE provide an update on any progress made regarding the timescales included in the dML conditions for approval of pre-construction documentation and agreement of documents, where	The MMO's position is that it remains that all documents should be submitted at 6 months and that there should not be a requirement for the MMO to respond within a time period. However, without prejudice, has provided comments on the Applicant's proposal for timescales of submission below. For this project, the MMO is content with the following timescales subject to the relevant interested parties also being content (i.e. Statutory Nature Conservation Body (SNCB), Historic	To note, the Applicant has provided an Outline Construction Method Statement (CMS) at Deadline 4 (REP4-056), not an Offshore Cable Management System. A Cable Specification and Installation Plan is part of the CMS. It is agreed by the Applicant that the following plans have been updated to 6 months at Deadline 5 in-line with MMO requests (in

ExQ1	Question	MMO response	Applicant response (if required)
	4 months can remain and those where 6 months can be accepted.	England (HE), Maritime and Coastguard Agency (MCA), Trinity House (TH)): ▪ **Design Plan**: 6 months prior to start of construction ▪ **Construction Programme**: 4 months prior to start of construction ▪ **Monitoring Plans in line with IPMP**: 6 months prior to start of surveys / construction / operation as relevant ▪ **Project Environmental Management Plan (PEMP)**: 4 months prior to start of relevant works ▪ **Offshore Written Scheme of Investigation (WSI)**: 4 months prior to start of construction ▪ **Aids to Navigation Plan**: 4 months prior to start of construction ▪ **MMMP**: 6 months prior to start of foundation installation ▪ **Vessel Traffic Management Plan (VTMP)**: 4 months prior to start of construction ▪ **Fisheries Liaison and Co-Existence Plan (FLCP)**: 6 months prior to start of construction ▪ **UWSMS**: 6 months prior to start of foundation installation ▪ **Decommissioning Plan**: 6 months prior to start of construction ▪ **Outline Offshore Operations and Maintenance Plan (OOMP)**: 4 months prior to start of operation	addition to the ones updated to 6 months at Deadline 4): ▪ Offshore CMS ▪ Outline Scour Protection & Cable Protection Plan

ExQ1	Question	MMO response	Applicant response (if required)
		The MMO would like to understand further from the Applicant on the reason the Offshore Cable Management System has remained at 4 months. The MMO would highlight that there are usually concerns in relation to the Design plan and the Scour and Cable Management plan that link together. If this stays at four months there could be delays to the discharge. ▪ **Offshore Cable Management System (CMS)**: 4 months prior to start of relevant works As above the MMO would like to understand further from the Applicant on the reason this has remained at 4 months. The MMO would highlight that there are usually concerns in relation to the Design plan and the CMS that link together. If this stays at four months there could be delays to the discharge, however the MMO notes the project is not impacting with any MPA or benthic features so the likelihood of this is reduced. ▪ **Scour & Cable Management Plan**: 4 months prior to start of cable/scour protection installation works The MMO notes the Applicant is updating the DCO to reflect this at Deadline 4 and will continue to work with the Applicant for a without prejudice agreement.	
1DCO8	**Micrositing** a) Within condition 9(1)(a)(ii) should there be a maximum limit	a) The MMO understands MCA highlighted in REP2-034 that they would be content with micro-	The Applicant can confirm that the draft DCO was updated at Deadline 4 to include a condition for micrositing (Schedule 6, Part 2,

ExQ1	Question	MMO response	Applicant response (if required)
	for micrositing within the two lines of orientation? If so, what should this be? b) Should this be allowed to be varied by consent, and if so, who should grant this consent, and should there be any limits on variation?	siting distances of 50m for micro-siting and 5m for tolerance. b) The MMO notes anything can be varied within a DML, it is up to the MMO to consult any relevant parties on a variation. The MMO has reviewed MCAs response (REP3-084) to this question. The MMO notes that MCA have proposed the condition is amended as follows: *"…and offshore substation platform subject to up to 55m micro-siting in any direction unless otherwise agreed in writing with the MMO in* *consultation with the MCA and Trinity House."* The MMO notes that the Applicant has said they will add micrositing of up to 55m in any direction to the version of the draft DCO submitted at Deadline 4 (REP3-068). The MMO notes that the 55m limit aligns with the response from MCA and Trinity House (REP3-099). The MMO will review the updated draft DCO submitted at Deadline 4 and provide comments at the Deadline 5, noting this is likely to be agreed.	Condition 9(1)(a)(v)) (REP4-002). The Applicant expects this matter can now be resolved, but will respond to any further comments provided by the MMO.
1DCO9	**Schedule 6, Condition 9(k) - Fisheries Liaison and Co-existence Plan (FLCP)** <u>To the Applicant:</u> a) The Applicant's response to the NFFO Relevant Representation ((PD1-011), RR-059-02) states that the FLCP is secured in Schedule 6 Condition 9(1)(k), which would be approved	The MMO is content that the condition does not require to be updated to reference all relevant parties. Generally, the FLCP is agreed with all parties prior to the submission to the MMO for approval and this is set out within the document. The MMO would highlight that if there should be no major outstanding issues at the close of Examination. The MMO believes that major issues should be dealt with during the decision and only the final details – influenced by the final design should be manged post consent. The MMO notes	The Applicant notes an update to the outline Fisheries Liaison and Co-existence Plan (FLCP) was provided at Deadline 4 in response to comments received by the National Federation of Fishermen's Organisation (NFFO). It is noted that some details would be agreed post consent but does not consider there to be material matters unresolved (as reflected in the

ExQ1	Question	MMO response	Applicant response (if required)
	by the MMO with consultation with the fishing industry. However, the pretext within Condition 9(1) only references approval by the MMO in consultation with the relevant statutory nature conservation body, Trinity House and the MCA. Can the Applicant amend the drafting so as to include reference to representatives of the fishing industry? If not, at what stage and how would the fishing industry be consulted on the final FLCP as indicated? How would this be secured? <u>Other IPs:</u> b) Do the parties have any comments on the drafting of Condition 9(1)(k) or the scope and content of the oFLCP at this stage?	there are still a number of issues in relation to fishing outstanding and will review updates submitted at Deadline 4. The MMO's concern is to manage conflicting opinions and positions at the post consent stage which should have been agreed at the time of the decision, which would delay the discharge process.	Statement of Common Ground (SoCG) submitted at Deadline 5). The Applicant has also had further discussions with the Isle of Man Territorial Seas Committee (IoM TSC) on the FLCP who are content with the outline plan as now reflected in the SoCG submitted at Deadline 5.
Schedule 8 – Documents to be Certified			
1DCO11	**Documents to be Certified** It has been noted that while the Applicant has renumbered the tracked versions of the documents submitted at D1 with an extra .1, for example the D1 tracked version of the HRA without prejudice derogation case	The MMO welcomes this request. The MMO would request that this Schedule is split into 3 parts: Part 1 — Documents Forming The Environmental Statement (ES) to be Certified Part 2 — Examination Documents Forming Part of the Environmental Statement to be Certified Part 3 — Other Documents to be Certified	The Applicant notes this response.

ExQ1	Question	MMO response	Applicant response (if required)
	(REP1-014) is now 4.11.1, this does not tally with the list of documents to be certified at Schedule 8 of the dDCO where document 4.11.1 is currently shown as the outline Compensation Implementation and Monitoring Plan. Could the Applicant please ensure that all documents in Schedule 8 are correctly referenced. This should be updated with each submission of a dDCO.	This is to ensure it is clear which documents were added during Examination. The MMO has reviewed the Applicant's response to this point. The MMO notes that the addition of '.1' in the tracked versions allows these to be separated from the clean versions and will not be listed int eh final DCO for the Project. The Applicant will also apply the current Examination Library reference to each document included in Schedule 8 in the version of the draft DCO submitted at Deadline 4. The MMO will review the Schedule 8 in the version of the draft DCO submitted at Deadline 4 and provide further comments if necessary.	
8. Habitats Regulations Assessment (HRA)			
1HRA28	**Cumulative effects relating to Invasive Non-Native Species (INNS)** The Applicant's assessment for INNS cumulatively with the M&MTA project focuses on the impact of vessels (such as ballast water) but does not consider the potential stepping stone effect of introduced hard standing from the M&MTA project. This could enable propagation of species from the shore to the site. Can NE and the MMO provide commentary on the risk of such propagation, the likelihood of a	The MMO notes NE is content that INNS has been acknowledged within Outline Project Environmental Management Plan. and has no further comments at this time. The MMO will provide an update on any other general comments from our scientific advisors at Deadline 5. The MMO will provide any comments to the Applicant early March so these can be taken into account, noting any comments will be minor at this stage and likely to be agreed by the end of Examination.	The Applicant has not received further Project specific input on this item from the MMO prior to Deadline 5. An email was received from the MMO on 11 March 2025 with links to condition wording used in a submission on a project located off the East Coast without context as to what would or would not be proposed for the Project. Therefore, the Applicant has not been able to provide a comment on the MMO's response. The Applicant however welcomes this response regarding Invasive Non-Native Species (INNS) and

ExQ1	Question	MMO response	Applicant response (if required)
	significant effect relating to INNS and any measures required to avoid or minimise such effects.		will respond to any further comments provided by the MMO at Deadline 5.
1HRA29	**Co-ordination/communication between projects during construction to minimise effects** The Applicant's 'Report on Interrelationships with Other Infrastructure Projects - Revision 01 (Volume 9)' (REP1-078) explains why the Applicant considers that a legal obligation to co-ordinate with other developments in the Irish Sea could impede delivery of the Morecambe OWF. Paragraph 86 of the report concludes that opportunities for coordination would be explored where relevant and in respect of project timescales as these develop further. In the absence of a legal obligation, explain what formal mechanisms exist to ensure that there would be meaningful engagement around coordination and that it would happen in a timely fashion. The ExA is particularly concerned about mechanisms to minimise the impact of noise on marine receptors at a cross project level.	The MMO has reviewed the Applicant's and NE's (REP3-092) response. The MMO notes that the Applicant does not consider that any coordination needs to be legally secured between the projects. NE notes that a 'coordination forum' has been set up and facilitated by the MMO for projects in the North Sea to coordinate their underwater noise generating activities. Commitments to the Coordination Forum has been secured through the inclusion of 'Coordination conditions' on relevant projects' marine licences. NE considers a similar approach could also be adopted for the Irish Sea. The MMO would highlight that the Coordination Forum was set up to assist multiple industries in managing the Southern North Sea (SNS) Special Area of Conservation (SAC). This was secured through requirements in the SNS SIP and on UXO marine licences with a condition. The MMO will review all interested parties' comments and provide comments at Deadline 5.	It is noted that the Applicant, as well as the developers of the Mona and Morgan projects have aligned to each provide a UWSMS and commitment is made to ensure each project mitigates their contribution to cumulative effects. The Applicant's UWSMS includes consideration of the status of other projects nearer to the time of construction to ensure mitigation provided by the Project is suitable also in relation to cumulative effects. It is noted that the Coordination Forum in the Southern North Sea (SNS) Special Area of Conservation (SAC) was set up directly as a result of the "review of consents" process after the SNS SAC was designated. It therefore was directly linked to the possibility of adverse effects on site integrity with a view towards mitigating any such adverse effects. The Round 4 Irish Sea Projects are not in a harbour porpoise SAC, and it is not considered that further coordination is required. Indeed, it is not just the Project, or Round 4

ExQ1	Question	MMO response	Applicant response (if required)
	To Mona Offshore Wind Ltd and Morgan Offshore Wind Limited a) These IPs are invited to make comments in relation to the above and to point to any provisions set out within their respective applications which would provide such co-ordination. To the Applicant, Mona Offshore Wind Ltd and Morgan Offshore Wind Limited b) While noting the issues identified in paragraph 43, should one (or more) of the other projects not proceed, could this be resolved by ensuring that any secured co-ordination was only relevant for those projects under implementation? To NE and MMO c) Would a mechanism to ensure co-ordination of OWF construction activities assist in reducing the cumulative effect of the Proposed Development with other projects and, if yes, do NE and MMO have examples of how such a mechanism would function and be secured?		offshore wind activities, in the region that may contribute to underwater noise. It is not in the Project's control to establish a coordination group across the Irish Sea nor is there a direct requirement for one.

Table 2.3 The Applicant's response to MMO's comments on the Applicant's response to Relevant Representations from the MMO (PD1-011)

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
Draft DCO				
RR-047-10	MMO has reviewed the draft DCO and provided comments below. MMO are currently undertaking a detailed review and will produce further comments on the DCO at Deadline 1 and during the course of the examination.	The Applicant notes this response and looks forward to receiving further comments on the draft DCO and Deemed Marine Licence (DML) at Deadline 1.	The MMO provided additional comments in in Section 3.2 of REP3-085 and will review the Applicant's response submitted at Deadline 4. The MMO notes that the Applicant has responded to the MMO's comments regarding the draft DCO submitted at Deadline 2 in the Applicant's submission at Deadline 3 (REP3-069). The MMO has discussed all outstanding DCO issues within a meeting on 14 February and has resolved some issues within he SoCG. Only some of the issues will be agreed by the end of Examination and these have been summarised in Section 5 of this response.	The Applicant has responded to the outstanding issues on the draft Development Consent Order (DCO) in **Table 2.4**.
RR-047-12	Section 2(d) states: 'the removal of sediment samples for the purposes of informing environmental monitoring under this licence during pre-construction,	The Applicant notes that the removal of sediment samples was included in section 2 in error and, as such, this has been deleted in the revised draft DML submitted at Procedural Deadline A.	The MMO previously noted that 'if these surveys were assessed within the ES then this could be part of the DML, it would just have to be clear within the DML when commencement begins in relation to the surveys and when method statements would be	The Applicant welcomes this response.

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	construction and operation' The MMO notes that geophysical surveys may require a separate licence. If so the wording in 2(d) must be clear that such activities are excluded from this licence		agreed and how the conditions are worded for any submissions post consent.' The MMO has reviewed the Applicant's (REP3-069) and notes the Applicant does not consider further action required. Currently, the MMO does not consider further action necessary.	
RR-047-13	Section 8 states: "With respect to any condition which requires the licensed activities be carried out in accordance with the details, plans or schemes approved under this licence, the approved details, plans or schemes are taken to include any amendments that may subsequently be approved in writing by the MMO" MMO recommends that the following be included in addition: "subsequent to the first approval of those plans, protocols	The Applicant considers that this additional text is not required as it is secured by paragraph 9(1) of Part 1 (Licensed marine activities of Schedule 6 (Deemed Marine Licence under the 2009 Act: Morecambe Offshore Windfarm Generation Assets) to the draft DCO (APP-012).	The MMO will provide an update on this week commencing 03 March as part of an additional submission. The MMO notes the ExA may not accept an additional submission and if so the information will be provided at Deadline 5. However, the MMO will work with the Applicant to try and agree a position for Deadline 5. The MMO believes this will likely be agreed.	The Applicant has not received further Project specific input on this item from the Marine Management Organisation (MMO) prior to Deadline 5. An email was received from the MMO on 11 March 2025 with links to condition wording used in a submission on a project located off the East Coast without context as to what would or would not be proposed for the Project. Therefore, the Applicant has not been able to provide a comment on the MMO's response. The Applicant looks forward to receiving further comment from the MMO.

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	or statements provided it has been demonstrated to the satisfaction of the MMO that the subject matter of the relevant amendments do not give rise to any materially new or materially different environmental effects to those assessed in the environmental information."			
RR-047-14	Details of the marine license activities 9(1) states: "Any amendments to or variations from the approved details, plans or schemes must be in accordance with the principles and assessments set out in the environmental statement. Such agreement may only be given where it has been demonstrated to the satisfaction of the MMO that it is unlikely to give	The Applicant does not consider that the wording proposed in paragraph 9(1) of Part 1 (Licensed marine activities of Schedule 6 (DML under the 2009 Act: Morecambe Offshore Windfarm Generation Assets) to the draft DCO (APP-012) lacks regulatory certainty or risks applying a lower standard than those approved in the Environmental Statement (ES). The proposed condition reflects the wording used in the environmental impact	The MMO will provide an update on this week commencing 03 March as part of an additional submission. The MMO notes the ExA may not accept an additional submission and if so the information will be provided at Deadline 5. However, the MMO will work with the Applicant to try and agree a position for Deadline 5. The MMO believes this will likely be agreed.	

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	rise to any materially new or materially different environmental effects from those assessed in the environmental statement." Due to a lack of regulatory certainty and risk of applying lower standards than those approved in the environmental statements the above wording should be amended to the following: "Any amendments to or variations from the approved details, plans or schemes must be in accordance with the principles and assessments set out in the environmental statements. Such agreement may only be given where it has been demonstrated to the satisfaction of the MMO that it will not give rise to any materially new or	assessment process (of 'likely' significant effects). Additionally, the wording of paragraph 9(1) proposed by the Applicant reflects the wording used in other offshore wind precedents, including the Sheringham Shoal and Dudgeon Extensions Offshore Wind Farm Order 2024, the East Anglia ONE North Offshore Wind Farm Order 2022, the East Anglia TWO Offshore Wind Farm Order 2022, the Norfolk Vanguard Offshore Wind Farm Order 2022 and the Norfolk Boreas Offshore Wind Farm Order 2021.		

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	materially different environmental effects from those assessed in the environmental statement."			
RR-047-15	The MMO requests that the conditions include a sediment sampling plan.	As noted in the Sediment Disposal Site Characterisation Report (APP-024), the Applicant plans to designate the entirety of the windfarm site as a disposal area. The Sediment Disposal Site Characterisation Report (APP-024) includes details on sampling that was carried out during the pre-application process. No further sampling is considered to be required. As such, the Applicant does not consider that a DML condition is required.	The MMO is content a new condition is not required. The MMO considers that this can be closed as disposal sites has been discussed in Section RR-047-53.	The Applicant welcomes this response.
RR-047-16	The MMO requests that a reporting condition in relation to 'Reporting of Impact Pile Driving/Detonation of Explosives' for reporting to the Marine	Noted. The Applicant has added a new condition 19 (Marine Noise Registry) in the DML submitted with the updated draft DCO at Procedural Deadline A. As UXO clearance and detonation of explosives are not licensable activities for	The MMO is waiting on the Applicant's position on the changes proposed in Section 3.2 of REP3-085	As per the Applicant's response to this matter in REP4-058, the Applicant has amended Condition 19 in the version of the draft DCO submitted at Deadline 4 (REP4-002). The amendments do not include reference to 'detonation of unexploded ordnance' as no Unexploded Ordnance (UXO)

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	Noise Registry is included.	the purposes of the application, the proposed reporting condition is in only in relation to pile driving.		clearance is authorised under the DCO. The Applicant has also made minor typographical changes to the updated wording.
RR-047-17	Condition 2(3) states: "No maintenance works authorised by this licence may be carried out until an offshore operation and maintenance plan substantially in accordance with the outline offshore operation and maintenance plan has been submitted to and approved by the MMO in writing" The MMO notes that whilst it is helpful that the maintenance plan must be approved by the MMO, it does not indicate that the maintenance works should be undertaken in accordance with this. The MMO request that the additional wording is included for	Noted. This has been added (with a minor change to refer to the 'offshore operation and maintenance plan' to reflect the document title) as a new sub-paragraph (4) to Condition 2 of the DML submitted with the updated draft DCO at Procedural Deadline A.	The MMO provided further amendments to this condition in Section 3.2.13 of its Deadline 3 response. The MMO will review the Applicant's response and provide comments where necessary.	As per the Applicant's response to this matter in REP4-058, these have largely been added to the draft DCO submitted at Deadline 4 (REP4-002), save that the obligation to notify of annual maintenance is triggered at the date of completion of construction (which must be notified in accordance with Condition 18) rather than the date of commencement of operations. This is for consistency purposes, and it is considered more appropriate that maintenance reporting would begin once construction is complete rather the operations commencing.

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	confirmation: "All maintenance works must be carried out in accordance with the approved operations and maintenance plan unless otherwise agreed in writing by the MMO."			
RR-047-18	Condition 7(6) states: "The undertaker must ensure that any rock material used in the construction of the authorised project is from a recognised source, free from contaminants and containing minimal fines." The MMO requests the following is included in addition: "Details of the source of the rock materials to be used must be submitted to the MMO at least six weeks prior to the commencement of the licenced activity. The licenced activity (or specific activity) must	The Applicant does not consider that condition 7(6) requires to be updated. The wording of condition 7(6) reflects the wording used in other offshore wind precedents, including the Sheringham Shoal and Dudgeon Extensions Offshore Wind Farm Order 2024, the East Anglia ONE North Offshore Wind Farm Order 2022, the East Anglia TWO Offshore Wind Farm Order 2022, the Norfolk Vanguard Offshore Wind Farm Order 2022 and the Norfolk Boreas Offshore Wind Farm Order 2021.	The MMO does not agree that precedent is enough justification in relation not changing a condition. The MMO would like to understand what the process will be on deciding the source of the rock to ensure there is no navigational concerns or contaminants risk and where this detail will be provided post consent.	The wording requested by the MMO (i.e. 'detailing the source of rock') has been added to the Outline Construction Method Statement (CMS) (Outline Construction Method Statement_Rev 02 Clean). It is also noted the volume of scour protection is detailed and secured in the Outline CMS (Outline Construction Method Statement_Rev 02 Clean) and the Outline Scour Protection and Cable Protection Management Plan (REP1-056). Therefore, the Applicant does not consider wording is required on the face of the deemed Marine Licence (DML). This was discussed with the MMO on 4

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	not commence until written approval is provided by the MMO"			March 2025 and considered agreed. The Outline CMS would be submitted to and approved in writing by the MMO in consultation with the relevant statutory nature conservation body, Trinity House and the Maritime Coastguard Agency (MCA), as appropriate. Regarding navigational, a detailed Cable Specification and Installation Plan (CSIP) for the authorised scheme, incorporating a cable burial risk assessment would be submitted by the Applicant. The detailed cable specification and installation plan will identify the risk of needing any cable protection that may exceed 5% of navigable depth referenced to Chart Datum. In the event that any area of cable protection exceeding 5 percent of navigable depth is identified, the cable specification and installation plan will set out details of any steps (to be determined following consultation with the MCA and Trinity House) to be taken to

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
				ensure existing and future safe navigation is not compromised.
RR-047-19	Condition 7(10) states: "All dropped objects which may reasonably be expected to cause a hazard in the marine environment must be reported to the MMO using the Dropped Object Procedure Form as soon as reasonably practicable and in any event within 24 hours of the undertaker becoming aware of an incident. On receipt of the Dropped Object Procedure Form the MMO may require relevant surveys to be carried out by the undertaker (such as side scan sonar) if reasonable to do so and the MMO may require obstructions to be removed from the seabed at the undertaker's expense if reasonable to do so."	The Applicant does not consider that condition 7(10) requires to be updated. Noting that the MMO's preferred wording has been included in several offshore wind DMLs, the Applicant considers that the wording proposed by the MMO is too wide. It places an unnecessary burden on the Applicant to report even minor, immaterial instances of dropped objects. The Applicant considers a pragmatic and proportionate approach must be taken and only considers dropped objects which may reasonably be expected to cause a hazard in the marine environment to be those to which the MMO's dropped objects procedure should apply.	The MMO has agreement from MCA on the following wording, noting the telephone number stated in (a) is to be confirmed: (7) (10) (a) Debris or dropped objects which are considered a danger or hazard to navigation must be reported as soon as reasonably practicable but no later than six hours from the undertaker becoming aware of an incident, to the relevant HM Coastguard Maritime Rescue Co-ordination Centre by telephone (add number), and the UK Hydrographic Office email: navwarnings@btconnect.com. (b) All dropped objects including those in (a), must be reported to the MMO using the Dropped Object Procedure Form (including any updated form as provided by the MMO) as soon as reasonably practicable and in any event within 24 hours of the undertaker becoming aware of an incident, unless otherwise agreed in writing with the MMO.	The Applicant agrees in principle with the proposed condition and suggests that the reporting is linked to guidance for projects in English waters which it understands from the MMO is forthcoming. Following discussion on 4 March 2025, the Applicant has provided amended condition wording to the MMO for further consideration and is reflected in the updated draft dML (Draft Development Consent Order_Rev 05 Clean) submitted at Deadline 5.

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	The MMO requests condition 7(10) is amended to the following: "(1) The undertaker must report all dropped objects to the MMO using the dropped object procedure form as soon as reasonably practicable and in any event within 24 hours of becoming aware of an incident. (2) On receipt of the dropped Object Procedure Form, the MMO may require, acting reasonably, the undertaker to carry out relevant surveys. The undertaker must carry out surveys in accordance with the MMO's reasonable requirements and must report the results of such surveys to the MMO. Receipt of such survey results, the MMO may, acting reasonably, require the undertaker to remove		(c) On receipt of notification or the Dropped Object Procedure Form the MMO may require relevant surveys to be carried out by the undertaker (such as side scan sonar) if reasonable to do so and the MMO may require obstructions to be removed from the marine environment at the undertaker's expense if reasonable to do so. The MMO is currently reviewing the Dropped Object Procedure and there is a potential of a change of wording to align with Marine Directorate - https://www.gov.scot/publications/offshorerenewables-accidental-deposit-of-anobject-at-sea-form-and-guidance/ (The MMO can PDF this webpage if requested by the ExA). This change shouldn't alter the requirement by the Applicant or any changes to the DML as (b) identifies what should be submitted it would just be a change in wording. The aim of this update is to ensure that reports must be made no later than 6 hours after the incident	

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	specific obstructions from the seabed. The undertaker must carry out removals of specific obstructions from the seabed in accordance with the MMO's reasonable requirements and at its own expense."		has been discovered for more major 'deposits' i.e. those that may be hazardous to shipping and within 24 hours of the incident being discovered in all other cases. A defined list of major deposits cannot be provided due to the nature of the activity. If the Project is in doubt whether an object is a danger/hazard to navigation then we would encourage them to assume it is and report it within 6 hours as per the condition.	
RR-047-20	The MMO does not consider that condition 8 Force majeure is necessary as it duplicates section 86 of the 2009 Act. The defence under Section 86 of MCAA has two limbs, and in the event that the undertaker fails to notify the appropriate licensing authority, in this case the MMO, within a reasonable time of their actions (Section 86(2)	Condition 8 (force majeure) serves a slightly different purpose to section 86 of the Marine and Coastal Access Act 2009. Condition 8 imposes a duty on the undertaker to notify the MMO of the circumstances of such a deposit. This ensures that the MMO is provided with that information. Section 86 of the 2009 Act does not contain any such duty. It simply acts as a defence in the event a person is charged with an offence. The	The MMO provided further comments in Section 3.2.18 of the Deadline 3 Response. The MMO will review and respond to the Applicant's response submitted at Deadline 4 to this point and provide a response at Deadline 5. The MMO notes that this a position is unlikely to be agreed on this matter.	As per the Applicant's response to this matter in REP4-058, the Applicant considers this to be a matter which is unlikely to be resolved by the close of the examination, given the fundamental difference in position and interpretation. The Applicant does not consider this to be a material impact, given the Secretary of State has consistently included this condition when granting development consent for recent offshore wind projects.

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	"matters") the defence cannot be relied upon in the event of any enforcement action. Therefore, the MMO recommends that this condition should be removed. In the event that you maintain that the proposed provision does not duplicate Section 86 MCAA and instead introduces a reporting requirement which did not previously exist, the MMO require that it should be made clear that this provision is in addition to Section 86 and its requirements. If this is included the follow paragraph must also be included: "The unauthorised deposits must be removed at the expense of the undertaker unless written approval is	Applicant has added a new sub-paragraph (2) to include the wording proposed by the MMO in the version of the DML submitted with the updated draft DCO at Procedural Deadline A.		

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	obtained from the MMO."			
RR-047-21	The MMO requests that the inclusion of archaeological reports in within condition 9. The correct statutory historical body should be included as well as details of what the report should include.	Condition 9(1)(f) (pre-construction plans and documentation) requires the submission and approval of an offshore archaeological Written Scheme of Investigation (WSI) (in accordance with the outline offshore WSI (APP-154)). This includes archaeological reports (sub-paragraph (vii)) and also makes provision for Historic England to be notified (sub-paragraph (vi)). The Applicant does not consider that any further text is needed.	The MMO is discussing this with Historic England to ensure they are content. The MMO will provide an update in at Deadline 5.	The Applicant notes this response and looks forward to receiving MMO's response on this matter if required.
RR-047-23	The provisions under article 7 Benefit of the Order are of concern to the MMO. The MMO requests that any reference to the MMO and DML should be removed from this article for transfer of the benefit of the DCO.	Article 7 of the draft DCO (APP-012) contains provisions for the transfer or lease of the provisions under the DCO. As set out in the Explanatory Memorandum (APP-013), these provisions are based on the Model Provisions, and the drafting has developed through the	Further comments have been provided in Section 3.2 of REP3-085. The MMO notes that the Applicant has responded to this point in (ID REO2035-25, Table 2, REP3-069) which has further comments in relation to Section 120(3) and 120(4). The MMO is reviewing this response and will	The Applicant notes this response and looks forward to receiving MMO's response on this matter.

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		inclusion of a similar article in many offshore wind farm development consent orders. Following the precedent drafting from other offshore wind farm orders, Article 7(2) provides the transfer or grant of DCO powers to take place with the written consent of the Secretary of State (SoS) and for this transfer or grant to take place without the need for consent in the circumstances specified in paragraph 7(5). Both of the circumstances set out in Article 7(2) allow for the transfer or grant of powers under the DML. Article 7(3) requires the Secretary of State to consult with the MMO before giving consent to the transfer or grant to another person of the benefit of the DML. This ensures that the MMO has the opportunity to participate in any decision to transfer or lease made under Article 7. Article 7(11) disapplies sections 72(7) and (8) of the	provide an update at Deadline 5. The MMO believes this will remain a matter of disagreement at the end of Examination.	

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		Marine and Coastal Access Act 2009 in relation to a transfer or grant of the benefit of the DML. The drafting in the draft DCO reflects a long-established precedent regarding the transfer of DCO powers and deemed marine licences that has been endorsed by the SoS many times, including most recently in the Sheringham Shoal and Dudgeon Extensions Offshore Wind Farm Order 2024. Where a transfer of the DML is sought under Article 7(2), the Secretary of State would consider the appropriateness of the party to whom the transfer or grant is proposed and would also take into account any representations made by the MMO before determining whether to grant consent. From a procedural perspective it is important that the DCO and the DML can be transferred together using the process set out in Article 7. It is considered		

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		important that the timing of any transfer or grant of powers/authorisations under the DCO and DML be aligned, as there is considerable overlap between the authorisations and the requirements/ conditions. In practice, the most common transfer scenario is when the offshore transmission infrastructure is transferred to the separate Offshore Electricity Transmission (OFTO) licence-holder following a public tender exercise via Ofgem, and it is important that an OFTO licence-holder have certainty that all consents, licences and permits will transfer concurrently via the same approval process.		
Draft MMMP (APP-149) and Appendix 11.3 Marine Mammal Unexploded Ordnance Assessment (APP-067)				
RR-047-27	Further, Section 3.1.4 paragraph 143 regarding breaks in piling states	The Applicant acknowledges the request, however notes that the wording proposed by the Applicant has previously	The MMO has reviewed the updated MMMP submitted at Deadline 2. The MMO has provided further comments regarding the	The Applicant has responded to the MMO's further comments from section 3.9 of REP4-064 below in **Table 2.4.**

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	"for any breaks in piling of less than 10 minutes, piling may continue as required (i.e. as if there was no break). For any breaks in piling of more than 10 minutes, but less than two hours, then the piling can recommence with a reduced soft- start procedure (e.g. five to six blows of the hammer at the starting hammer energy) before continuing as required, provided there are no marine mammals within the Management Area". The Joint Nature Conservation Committee (JNCC) (2010) guidance recommends that if there is a pause in piling operations for a period of greater than 10 minutes, then the pre-piling search and soft-start procedure should be repeated	been agreed for other offshore windfarm projects, including Dogger Bank A and Dogger Bank B. The Applicant notes finalisation of wording in the Marine Mammal Mitigation Protocol (MMMP) would be undertaken post-consent alongside developed Project design information, in the event that piled foundations are selected as part of detailed design for the Project.	MMMP, see section 3.9 of this letter.	

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	before piling recommences. If a watch has been kept during the piling operation, the Marine Mammal Observer or Passive Acoustic Monitoring Operative should be able to confirm the presence or absence of marine mammals, and it may be possible to commence the soft-start immediately. However, if there has been no watch, the complete pre-piling search and soft-start procedure should be undertaken. The guidance recommends that the soft-start duration should be a period of not less than 20 minutes. Any requested variation from a 20-minute soft-start should be agreed with the relevant agency and			

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	regulator. The MMO and Cefas request that the guidance is adhered to, and the full soft start is implemented (not 5 to 6 blows at the starting hammer energy as is proposed in the MMMP).			
RR-047-28	Table 3.1 in the MMMP presents cumulative sound exposure Level (SELcum) modelled impact ranges for piling of both monopile and pin-pile at the worst-case (south west) location. The MMMP refers the reader to Appendix 11.1 of the ES (Document Reference 5.2.11.1) for more details, which describes the underwater modelling undertaken. Please note that the impact ranges presented in Table 3.1 are vastly different to those	Table 3.1 in the draft MMMP (APP-149) lists the worst-case impact ranges for the Project based on the maximum strike rate scenario listed in Appendix B of Appendix 11.1 Underwater Noise Assessment (APP-065) and would be the worst-case impact range to be mitigated. There is no discrepancy, but it is noted that Appendix 11.1 Underwater Noise Assessment (APP-065) also presents the lower strike rate scenario.	The MMO has reviewed the updated MMMP submitted at Deadline 2. The MMO considers that the MMMP has been appropriately updated to clarify this point.	The Applicant welcomes this response, however, notes that the MMO had not yet reviewed the updated draft Marine Mammal Mitigation Plan (MMMP) submitted at Deadline 4 (REP4-027). The Applicant will respond to any further comments from the MMO, if required.

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	presented in Appendix 11.1 (see Table 4-22 in Appendix 11.1 for example which presents the impact ranges for monopiles and Annex			
RR-047-29	With regard to Appendix 11.3 Marine Mammal Unexploded Ordnance Assessment, the MMO and Cefas note a minor discrepancy. In Table 4.8 and 4.9, the PTS (permanent threshold shift) and TTS (temporary threshold shift) criteria for UXO (unexploded ordnance) are based on the SPLpeak (peak sound pressure level) metric, and the SELss (single strike sound exposure level) metric, not the SELcum.	Noted, the error in the heading has been updated in The Applicant's Errata Sheet (Document Reference 8.4), submitted alongside this document at Procedural Deadline A.	The MMO notes the Applicant's response, that the Appendix submitted at Deadline 1 (REP1-046 and REP1-047) was incorrectly amended and an updated version is anticipated to be submitted at Deadline 4. The MMO thanks the Applicant for their clarification/response and welcome that an updated version will be submitted.	The Applicant welcomes this response and defers to the updated Appendix 11.3 Marine Mammal Unexploded Ordnance Assessment submitted at Deadline 4 (REP4-017).

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RR-047-30	Further, Table 5-1 confirms that 616 individual harbour porpoise are at risk of PTS during high-order detonation (353.6 kg Net Explosive Quantity (NEQ) plus donor charge) but this has been assessed as having a 'Medium' magnitude. For Low-Order clearance, 7 individual harbour porpoise are at risk of PTS, and this has also been assessed as having 'Medium' magnitude. The MMO and Cefas question whether 'Medium' magnitude is appropriate for the high order assessment. The MMO and Cefas understand that this scoring is based on the fact that 1% of the reference population is anticipated to be exposed (which is	Noted, 0.986% will be rounded up to 1% and the magnitude will be amended from medium to high. This will be updated accordingly in a separate technical note to be submitted at Deadline 1. It is noted that the precautionary change in magnitude from medium to high would not change the overall significance and conclusions of the assessment.	The MMO acknowledges that the Applicant will incorporate the updated assessment in an updated Chapter 11 Marine Mammals anticipated for submission at Deadline 4 and will likely consider this matter closed upon review of the document. This point was raised to highlight awareness. While the EIA categorises the 3.3% population impact on harbour porpoises as "Low" magnitude, the absolute number of 2,037 individuals at risk of TTS is significant. TTS can impair their ability to communicate, navigate, and detect predators or prey, which are critical for their survival. Given other existing threats to harbour porpoises, the additional burden of noise-induced hearing loss should not be underestimated. The MMO welcomes that low order clearance would be undertaken where possible in acknowledgment of the residual effects. Additionally, the recent policy papers on reducing	The Applicant welcomes this response and highlights the update to the Chapter 11 Marine Mammals submitted at Deadline 4 (REP4-011).

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	0.986 % of the Celtic and Irish Sea (CIS) Management Unit (MU) according to Table 5-1).		marine noise published by DEFRA include an updated position statement on UXO clearance.	
RR-047-31	Following on from the previous point, the MMO and Cefas also question the Magnitude scoring in Table 5.2. Table 5-2 confirms that 2,037 individual harbour porpoise are at risk of TTS during high order detonation, but this has been assessed as only having a 'Low' magnitude (with 3.3 % of the CIS MU anticipated to be at risk of TTS).	As outlined in Appendix 11.3 Marine Mammal UXO Assessment (APP-067) Table 4.3 the definition of impact magnitude for a marine mammal receptor, a 3.3% population level impact falls within the 'Low' magnitude category for an intermittent and temporary effect.	The MMO has nothing further to note, apart from maintaining our original comments and recommendations. The MMO has provided further comments in section 3.9.	It is noted the MMO states in relation to WR-096-110 in **Table 2.4** below, the MMO "*does not require further action at this time, this point was raised to highlight awareness*".
RR-047-32	With regard to Section 5.2, 'Disturbance from underwater noise associated with UXO clearance', Cefas and the MMO do not support the use of TTS as a proxy for disturbance. Therefore, the MMO and Cefas disagree with	There are no agreed thresholds for the onset of a behavioural response from underwater noise generated by explosions during UXO clearance activities. Empirically-derived relationships between noise levels and the probability of a	The MMO has nothing further to note, apart from maintaining our original comments and recommendations.	The Applicant maintains the position on this point as set out in REP4-058. It is considered there is no material impact on the assessment provided, considering both the position of the MMO and the Applicant. The Applicant will however take account of MMO's position when undertaking the

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	paragraph 84 that "the use of the TTS threshold was appropriate for UXO disturbance because the noise from the UXO explosion would be only fleetingly in the environment". TTS constitutes a temporary reduction in the sensitivity of the auditory system. The characteristics of TTS are distinct from behavioural disturbance, in which an animal changes its behaviour in response to a stimulus. There is no cognitive impairment implicit in behavioural responses. TTS typically occurs at much higher sound exposures than the onset of behavioural disturbance, and so if behavioural disturbance is assumed to occur only at sound	response to pile driving noise (i.e. the 26km Effective Deterrence Radius (EDR)) are not appropriate to apply here due to the very different nature of the sound. Other assessments of UXO clearance activities have used the Temporary Threshold Shift (TTS)-onset threshold to indicate the level at which a 'fleeing' response may be expected to occur in marine mammals. This is a result of discussion in Southall et al. (2007) which states that in the absence of empirical data on responses, the use of the TTS-onset threshold may be appropriate for single pulses (like UXO detonation): "Even strong behavioural responses to single pulses, other than those that may secondarily result in injury or death (e.g., stampeding), are expected to dissipate rapidly enough as to have limited long-term consequence. Consequently, upon exposure to a single pulse, the onset of significant		Marine Licence Application for UXO clearance as required, noting this assessment will also take into account the latest guidance on the mitigation requirements and assessment methodologies.

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	exposures where TTS would occur, this is likely to significantly underestimate the risk of disturbance.	behavioural disturbance is proposed to occur at the lowest level of noise exposure that has a measurable transient effect on hearing (i.e., TTS-onset). We recognize that this is not a behavioural effect per se, but we use this auditory effect as a de facto behavioural threshold until better measures are identified. Lesser exposures to a single pulse are not expected to cause significant disturbance, whereas any compromise, even temporarily, to hearing functions has the potential to affect vital rates through altered behaviour" (Southall et al., 2007). Therefore, an estimation of the extent of behavioural disturbance is based on the sound levels at which the onset of TTS is predicted to occur from impulsive sounds. TTS thresholds are taken as those proposed for different		

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		functional hearing groups by Southall et al. (2019). It is noted that UXO clearance is not part of the DCO Application and assessment was provided for information, noting a marine licence application for UXO clearance, if required, would be made separate from the DCO Application.		
RR-047-33	To quantify the risk of behavioural responses where there are no better alternatives, the effective deterrence ranges (EDRs) in place for noise management in harbour porpoise Special Areas of Conservation (SACs) could be used instead. Since harbour porpoise are relatively skittish and sensitive to underwater noise, the EDRs are likely to be conservative for other marine mammal	The Applicant acknowledges this response, noting, as stated in the draft MMMP (APP-149), the final MMMP for UXO clearance would be submitted for approval under a future marine licence application, separate from the DCO Application. As outlined in Southall et al. (2021) thresholds that attempt to relate single noise exposure parameters (e.g., received noise level) and behavioural response across broad taxonomic grouping and sound types could lead to severe errors in predicting	The MMO does not have further comments. The MMO maintains our original comments and recommendations.	The Applicant maintains the position on this point as set out in REP4-058. It is considered there is no material impact on the assessment provided, considering both the position of the MMO and the Applicant. The Applicant will however take account of MMO's position when undertaking the Marine Licence Application for UXO clearance as required, noting this assessment will also take into account the latest guidance on the mitigation requirements and assessment methodologies.

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	species and are therefore a suitably precautionary option in the absence of other data (unlike using TTS as a proxy for disturbance). Thus, the MMO and Cefas welcome that the 26km EDR, as per the Statutory Nature Conservation Bodies (SNCB) guidance (JNCC et al., 2020) has also been considered in the assessment for harbour porpoise and disturbance. A 5km potential disturbance range for low-order clearance, for all marine mammal species, has also been considered (JNCC, 2023) and includes vessels associated with the activity.	effects. Differences between species, individuals, exposure, situational context, the temporal and spatial scales over which they occur, and the potential interacting effects of multiple stressors could lead to inherent variability in the probability and severity of behavioural responses. The 26km EDR is based on harbour porpoise disturbance for piling activities and is also used for high order clearance "despite there being no empirical evidence of harbour porpoise avoidance" (JNCC et al., 2020). Consequently, this EDR may not accurately represent UXO clearances. Applying this EDR to other species is deemed overly conservative and could lead to an overestimate of potential effect for other species. TTS has been used as a proxy for disturbance for assessing disturbance from high order UXO clearance for species where there is no		

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		recommended EDRs such as for dolphins, for other offshore windfarm projects such as Seagreen Offshore Wind Farm, Sheringham and Dudgeon Extension Projects, and Dogger Bank South Offshore Wind Farm Projects.		
RR-047-34	Additionally, Section 5.2, paragraph 90 states "In addition, the MMMP for UXO clearance will include ADD (acoustic deterrent device) activation prior to all UXO clearances, to ensure marine mammals are beyond the maximum potential impact range for PTS". There is no certainty or guarantee that animals will be deterred beyond the maximum impact ranges. In fact, the assessment later highlights in para 98 that "as per ADD review in the JNCC report No.	The Applicant acknowledges this response, noting, as stated in the draft MMMP (APP-149), the final MMMP for UXO clearance would be submitted for approval under a future marine licence application, separate from the DCO Application. The Applicant will apply this advice when reviewing mitigation measures during the submission of the UXO clearance marine licence once further details of the proposed UXO works are known.	The MMO is still reviewing the information with our scientific advisors and will provide any additional comments or confirm this point is closed at Deadline 5.	The Applicant notes this response and will respond to the MMO when further comments are received at Deadline 5. However it is noted that the Applicant has outlined in the Underwater Sound Management Strategy (UWSMS) submitted at Deadline 5 that Acoustic Deterrent Device (ADD) times will be reduced through the application of noise abatement for the worst case scenario within the Environmental Statement (ES), and will review through the UWSMS the final mitigation to be agreed against the final design of the Project.

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	615 (McGarry et al., 2022), the ranges of deterrence distances can vary significantly from only a few meters to several kilometres (approximately 6km for VHF cetacean); these differed between devices and dependent on the acoustic properties of the environment (Rosemeyer et al., 2021)". Although an indicative assessment has been provided, the MMO and Cefas request that the ADD activation times (and mitigation in general) are revisited once further details of the proposed UXO works are known.			
Outline PEMP (APP-146) and IPMP (APP-148)				
RR-047-35	The MMO and Cefas do not have any major comments on the Outline Project Environmental	The Applicant notes this response.	Please see comments in relation to Chemicals in Section 3.2 of REP3-085, however notes that this document is suitable.	The Applicant has not received further Project specific input on this item from the MMO prior to Deadline 5. An email was

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	Management Plan (PEMP).		The MMO will provide an update to the Applicant on the chemicals condition and requirements W/C 24 February with the aim to provide a position at Deadline 5. The MMO believes this is likely to be a not agreed – material impact position.	received from the MMO on 11 March 2025 with links to condition wording used in a submission on a project located off the East Coast without context as to what would or would not be proposed for the Project. Therefore, the Applicant has not been able to provide a comment on the MMO's response.
RR-047-36	The MMO and Cefas welcome further assessment be conducted prior to construction, based on the foundation type and installation method, to determine if there is the risk of significant disturbance to marine mammals. This would then be used to determine if further mitigation measures which reduce sound propagation and disturbance are required. If they are required, then a review	Noted, confirmation of requirements for mitigation would be agreed post-consent during the finalisation of the MMMP which is secured in Condition 9(1)(i) of Schedule 6 of the Draft DCO (APP-012). The Applicant is planning appropriately for the potential requirement for noise abatement systems (NAS), and this will be one of the options considered when developing the MMMP.	The MMO understands the Applicant is updating multiple documents for Deadline 4 in relation to Noise abatement and the Defra policy. The MMO has provided comments regarding the MMMP and UWSMS in section 3.9 and 3.10 of this letter noting further comments will be provided at Deadline 5.	The Applicant welcomes this response and has commented on the MMO's previous response at Deadline 4 (REP4-058). The updated UWSMS submitted into examination at Deadline 5 (Outline Underwater Sound Management Strategy_Rev 03 Clean) was provided to the MMO on 5 March 2025 for review to inform their Deadline 5 submission.

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	would be conducted to determine what is the most appropriate and effective method based on the latest and available methods prior to construction. This would include a review of all suitable noise abatement measures at that time.			
RR-047-37	The MMO and Cefas does not have any major comments in regard to the In Principle Monitoring Plan (IPMP).	The Applicant notes this response.	Other than the comments raised within Section 6 on the IPMP of the Deadline 3 Response the MMO is largely content with the IPMP but will continue to review NE advice and support any requests from NE.	The Applicant notes this response.
General comments **Chapter 7 Marine Geology, Oceanography and Physical Processes (APP-044)** **Chapter 8 Marine Sediment and Water Quality (APP-045)**				
RR-047-46	The MMO and Cefas request that section 8.61 be clarified to include the types of chemical analyses performed on samples (e.g. metals, PAHs,	Section 8.61 of Chapter 8 Marine Sediment and Water Quality (APP-045) relates to sediment data collected for other projects: Walney Extension IV Offshore Wind Farm (Dong Energy, 2013)	The MMO advised that it will provide confirmation on the status of this comment at Deadline 4. The MMO is still reviewing this point and hopes to have a position early March. The MMO will provide an update	It is understood by the Applicant via a meeting with the MMO on 4 March 2025 that there are no issues surrounding the types of analysis or results presented.

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	PCBs etc.) and which if any together with the location of those samples that exceeded AL (action level) 2, as stating there were no significant exceedance of AL2 does not provide adequate explanation of the contamination present. The MMO and Cefas are not suggesting these analyses are undertaken but require reasons as to why they were not selected.	(approximately 18.8km from the Project) and West of Duddon Sands offshore windfarms (Dong Walney (UK) Limited, 2006) (approximately 12.9km from the Project). Given the age of the Environmental Impact Assessment (EIA)s, distance to the Morecambe array area and age of the data, the MMO are guided to the site-specific data presented in sections 8.69 to 8.72 which was collected within the Morecambe array area and much more recently, in 2022. This data did not show any exceedances of Cefas Action Level (AL) 1 for any of the parameters for which analysis was undertaken and is considered the best and most relevant evidence regarding levels of contamination present that could potentially be disturbed. This aligns with MMO comment ID RR-047-45.	to the Applicant prior to Deadline 5 and to the ExA at Deadline 5.	

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RR-047-47	The MMO and Cefas note that comparison of levels of arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc to Canadian quality standards should not be undertaken as the methods used to produce the results are not directly comparable in that the Canadian sediment quality guidelines use normalised metals analysis and likely a different digestion to that of the methods used for production of results of dredge material for determination of suitability for disposal for comparison to the UK Action Levels (e.g. aqua regia/nitric digest, no sieving, no normalisation).	Noted. The appropriate comparison against United Kingdom (UK) actions levels has been undertaken (MMO, 2015) (see Paragraph 8.25 of Chapter 8 Marine Sediment and Water Quality (APP-045).	The MMO advised that it will provide further updates. The MMO is still reviewing this point and hopes to have a position early March. The MMO will provide an update to the Applicant prior to Deadline 5 and to the ExA at Deadline 5, this will also include the disposal sites.	It is understood by the Applicant via a meeting with the MMO on 4 March 2025 that there are no issues surrounding the types of analysis or results presented.

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Chapter 5 Project Description (APP-042)				
RR-047-48	You have suggested that for scour protection 'bagged solutions filled with grout or other materials. Protective aprons, mattresses with or without frond devices, and rock, concrete and gravel placement' (Chapter 5 section 5.53). Bags or mattresses may contain plastics. Concrete mattresses maybe linked polypropylene rope lattice, and artificial fronds mattresses made of continuous lines of overlapping buoyant fronds consisting of polypropylene or similar have been used in the marine environment over the years. Placing plastic infrastructure into the marine environment could pose	The Applicant acknowledges the MMO consideration of the risks associated with the introduction of plastic infrastructure. The selection of scour protection methods, where required, will be evaluated and further considered post-consent in the Offshore Construction Method Statement, focusing on both engineering and suitability and environmental recoverability. The Offshore Construction Method Statement will be developed through consultation with the MMO and is secured in Condition 9(1)(d) of Schedule 6 of the Draft DCO (APP-012).	The MMO notes there is not an outline Offshore Construction Method Statement and requests that a commitment is captured in the commitments register (REP1-094) (and that this is a certified document) that the use of plastic will be fully taken into account in the offshore Construction Method Statement. If this is added the MMO is content this comment is closed.	An Outline CMS was submitted at Deadline 4 (REP4-056). The following commitment '*Non-plastic alternatives, if available at the time, will be considered once the requirements are better understood'* is detailed in Table 5.2 of the Outline CMS (REP4-056), and was reflected in an updated Commitments Register at Deadline 4 (Ref. C052 in REP4-047).

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	a risk should they degrade. The MMO and Cefas request that the final design of these frond mattresses should be detailed in the offshore construction method statement that will be submitted to and approved by the MMO prior to commencement of development. This can then be secured within the Draft DCO submitted with the application for consent.			
RR-047-49	In line with OSPAR guidance on the construction operation maintenance and decommissioning of offshore windfarms notification should be given to the regulator where there is potential for chemicals used and or discharged where there is a pathway to the marine environment, including	The Applicant acknowledges the MMO comments. An Offshore Project Environmental Management Plan (PEMP) will be finalised post-consent, to include details of a chemical risk assessment, that shall include information regarding how and when chemicals are to be used, stored and transported in accordance	Please see comments in Section 3.2 of the MMO's Deadline 3 response on updates to the chemical condition. The MMO will review and comment on any response from the Applicant, if required.	The Applicant has not received further Project specific input on this item from the MMO prior to Deadline 5. An email was received from the MMO on 11 March 2025 with links to condition wording used in a submission on a project located off the East Coast without context as to what would or would not be proposed for the Project. Therefore, the Applicant has not been able to

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	those used within closed systems that require frequent top up should provide full details of the risk and justification for use of chemicals. This guidance includes the use of paints and coatings. In addition, some piles may require pre-drilling (with a maximum drill penetration of 56m) therefore the use of drilling fluids cements or cement additives etc., should be notified to the MMO for approval prior to use (section 5.103).	with recognised best practice guidance. The PEMP is secured in Condition 9(1)(e) of Schedule 6 of the Draft Development Consent Order (APP-012).		provide a comment on the MMO's response. The Applicant remains in consultation with the MMO regarding the wording on chemicals and will update any documents, as required.
RR-047-50	For gravity base options where necessary ballast used maybe water or heavy material such as rock or both. It does not say whether there will be any antifouling or biocide used within the gravity base either on	Should water be used as ballast, this would be locally sourced rather than imported, therefore the use of biocide is not considered necessary. The use of antifouling on solid ballast is again considered unnecessary. Implementation of biosecurity	The MMO welcomes the commitment that locally sourced ballast would be used rather than imported. The MMO considers this matter closed but would highlight that there are still outstanding comments in relation to Chemicals. Please see	The Applicant welcomes this response, noting that locally sourced ballast only applies to water and not heavy material such as rock (see response to RR-047-18 re source of rock to be outlined to the MMO as part of the CMS approval).

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	installation or potentially required in the future. The MMO request that this be clarified within the ES (section 5.100).	measures in line with international and national regulations and guidance will be listed within the PEMP, an Outline of which was submitted as part of the DCO Application (APP-146).	comments in Section 3.2 of REP3-085.	See below in regards to chemicals.
RR-047-52	The MMO and Cefas find it encouraging that outline procedures for the management of mud produced during drilling activities or any material from the seabed preparation are to be disposed of in accordance with the limits of the Deemed Marine Licence for licensed marine activities including disposal location quantities measures for waste concrete etc. Reporting procedures for these were included as part of the Project Environmental Management Plan. The	The Applicant acknowledges the MMO comments. The PEMP will include reporting requirements and is secured in Condition 9(1)(e) of Schedule 6 of the Draft DCO (APP-012).	Please see comments in Section 3.2 of REP3-085 in relation to Chemicals. Although information will be captured in the PEMP the MMO requires further information. The MMO will review and provide comments on any response received by the Applicant.	The Applicant has not received further Project specific input on this item from the MMO prior to Deadline 5. An email was received from the MMO on 11 March 2025 with links to condition wording used in a submission on a project located off the East Coast without context as to what would or would not be proposed for the Project. Therefore, the Applicant has not been able to provide a comment on the MMO's response. The Applicant remains in consultation with the MMO regarding the wording on chemicals and will update any documents, as required.

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	MMO and Cefas note that drilling fluids together with all chemicals with a pathway to the marine environment should be included in plans for reporting.			
RR-047-53	The MMO and Cefas note that if the sandwave clearance material is anticipated to be placed back within the array area you most likely would have to apply to the MMO to designate the area as a disposal site for the MMO to be able to fulfil its statutory obligations under OPSAR to be able to make accurate returns for dredge and disposal.	While surveys to date do not identify prevalence of sandwaves within the windfarm site, Chapter 7 Marine Geology, Oceanography and Physical Processes (APP-044), Chapter 8 Marine Sediment and Water Quality (APP-045) and Chapter 9 Benthic Ecology (APP-046) of the Environmental Statement (ES) assess the worst-case requirement for sandwave clearance/clearance of seabed sand features and disposal within the order limits. A Sediment Disposal Site Characterisation Report (APP-024) has been provided as part of the application in order for the area within the order limits to be designated	The MMO has received the most up to date shape file to enable the MMO to designate a disposal site. This reference number should be stated on the DML and the MMO is aiming to have a response early March and will share this with the Applicant so this can be taken into account for Deadline 5.	The Applicant has not received a disposal site reference number from the MMO prior to Deadline 5 and therefore has not been able to amend the draft dML to accommodate the MMO's request.

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
		as a disposal site through the DCO. The Applicant notes that the removal of and disposal of inert material is included as associated development for the purposes of the definition of the authorised project (Schedule 1, Part 1, Paragraph 1(c)) and for the purposes of the definition of the licensed marine activities (Schedule 6, Part 1, Paragraph 3(c)). These definitions state that such activities are authorised 'within the Order limits'. Accordingly, no separate application for designation is considered required.		
Chapter 9 Benthic Ecology (APP-046) Chapter 10 Fish and Shellfish Ecology (APP-047)				
RR-047-57	Figure 10.6 of Volume 5 Chapter 10 Fish and Shellfish Ecology Figures presents a 'heatmap; of herring larvae abundance date over the most recent 10 years of the NHLS (Northern Irish Herring	The MMO are correct in their summary of the methods used to create heatmaps of herring larvae abundance from Northern Irish Herring Larvae Survey (NIHLS) data. The qualitative heatmap is intended to display how larval density distribution	The MMO considers this matter closed.	The Applicant welcomes this response.

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	Larvae Survey) (2012-2021) which has been overlaid with the mapped noise contours for the three modelled pile locations (east, north-west and south-west) based on the maximum hammer energy of 6,600 kJ, based on the 135 dB SELss threshold. Cefas fisheries advisors have had previous discussions with the Applicant's consultants regarding your approach to presenting data on the abundance and distribution of herring larvae at the Manx spawning ground. The MMO and Cefas understand that their approach has taken the NIHLS point data at each station and weighted these points according to the relative abundance of larvae	corresponds with existing spawning ground maps. An update to the figure legend has been made to display larval abundance quantitatively, giving further context to the heatmap colour scheme, and is being submitted at Procedural Deadline A (5.3.10 Chapter 10 Fish and Shellfish Ecology Figures_Rev 02) alongside this document.		

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	across the grid, then smoothed the points to generated areas of higher and lower density/heat. Whilst it was agreed that this approach was suitable, it should be recognised that the 'high' / 'low' colour scheme shown in the legend in Figure 10.6 does not provide any value to contextualise what 'high' abundance or 'low' abundance means in terms of the number of herring larvae (e.g. no. per m2), so the heatmaps have limited value to the reader (unless they have been made aware of how the data have been treated). The MMO alongside Cefas recommend that the legend is updated for transparency/clarity to all readers of the ES.			

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
RR-047-58	Cefas and the MMO do not support the conclusions made in the CIA (Cumulative Impact Assessment). The UWN modelling presented in Figures 10.8a and 10.8b present the piling noise impact range noise contours which overlap the spawning grounds of Atlantic cod. The modelling uses the hearing thresholds in Group 3 fish for piling of 207, 203 and 186 dB SELcum for mortality and potential mortal injury, recoverable injury and temporary threshold shift (TTS), respectively. Results of the underwater noise modelling presented in Table 10.25 (Chapter 10 Fish and Shellfish Ecology) quantify the area of impact to eggs and larvae during mono- and pin-piling,	The Applicant acknowledges the overlap of Group 3 noise effect thresholds from the Project and Atlantic cod spawning grounds displayed in Figures 10.8a and 10.8b. The Cumulative Effects Assessment (CEA) conclusions made in Section 10.7.3 of Chapter 10 Fish and Shellfish Ecology (APP-047) are drawn from the wide extent of cod spawning grounds across the Irish Sea and the temporary nature of piling effects in comparison to a four month spawning period. Effects on eggs and larvae are considered in Paragraphs 10.211 to 10.220 of Chapter 10 Fish and Shellfish Ecology (APP-047). In relation to the data sources mentioned by the MMO, the Applicant has considered these sources and is of the position that they are not sufficient to materially alter the understanding of cod spawning in relation to the	The MMO had a meeting with the Applicant on 14 February to discuss outstanding issues with our scientific advisors. The Applicant explained that further commitment and modelling will be provided at Deadline 4 in relation to the use of NAS and in relation to the dates of the seasonal restrictions. The MMO explained that full spatial modelling would be required to remove a seasonal restriction requirement on the DML. The Applicant explained that this would not be provided. The Applicant understood the MMO's position that without this modelling there is not enough evidence to remove the requirement for the seasonal restriction to be included on the face of the DML. The MMO believes that no new information can be provided by the Applicant during the remainder of Examination that will remove the requirement for a piling restriction on the face of the DML.	See response to 1BEM24 in **Table 2.2**.

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	which is limited to an area of 0.32km2 for monopiling and 0.19km2 for pinpiling, though the impact range for this impact is not shown in Figures 10.8a and 10.8b. Figures 10.8a and 10.8b show that piling noise overlaps the spawning grounds of cod for all impairments, i.e. mortality and potential mortal injury, recoverable injury and especially for TTS. Whilst suitable UWN modelling has been undertaken in respect of cod, it is disappointing to see that the assessment of impacts from UWN has assessed cod under the generic Group 3 fish in Section 10.245. The assessment seems to be missing the link between the cod as a	Project, and subsequently would not materially affect the assessment of significance (or the MMO's position that they do not support the conclusions of the CEA in relation to cod spawning). The Applicant intends to follow the developments in the approach to piling of other nearby projects (in terms of timings, techniques, and mitigations), and will further develop the piling strategy, including any mitigations, in agreement with the MMO post-consent. The Applicant will seek to discuss further with the MMO (and NE) given their comment regarding this in their RR) the structure of an Underwater Sound Management Strategy as a mechanism of agreeing mitigation post-consent, which will also consider measures the Project may need to take in light of potential cumulative effects	However, there is still further discussion on the refinement of the seasonal restriction dates of the piling restriction and the MMO understands further evidence will be provided in relation to this at Deadline 4. The MMO and its scientific advisors are still reviewing all information provided at Deadline 3 and understands that some information will be superseded by Deadline 4 submissions. The MMO is aiming to have an update by early March and will share this with the Applicant as soon as possible to enable any further changes to documents to be included at Deadline 5. To clarify, the MMO and the Applicant are still working on the specific cod spawning period and the MMO believes this will be **agreed by the end of Examination**. **The outstanding point that will be not agree – material impact on the Applicant's Statement of Common Ground will be the need for**	

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	Group 3 fish and the spawning activity they engage in at their spawning grounds. Meanwhile, the assessment of impacts from noise on spawning grounds in Sections 10.211 – 10.220, only considers impacts to the eggs and larvae, rather than the spawning fish. In our advice for PEIR we highlighted that piling works could have potential to significantly impact cod at a population level if piling was to occur during their spawning season (January – April inclusive). This is of particular importance, given ICES' latest advice on cod for the Irish Sea which states that 'when the maximum sustainable yield (MSY) approach and precautionary	and in line with other projects on similar timescales. The Applicant will provide an Outline Underwater Sound Management Strategy at Deadline 2 in order to take into account potential further comments from the MMO expected at Deadline 1. The Applicant has added a new condition 30 (Underwater Sound Management Strategy) in the DML submitted with the updated draft DCO at Procedural Deadline A to secure this. Additionally, the Outline Underwater Sound Management Strategy has been added as document to be certified in the draft DCO.	**the seasonal restriction on the face of the DML.** The Applicant believes there is no need as this is within the UWSMS and the plan is the correct mechanism to manage this. The MMO's position is that not enough evidence has been provided to provide the confidence that a seasonal restriction can be removed at this point in the Examination and is unlikely to be provided until the post consent stage when the project has been refined. Without evidence the MMO's position is a seasonal restriction should be on the DML, this is the appropriate place for a restriction to be in the absence of evidence. However, the MMO agrees that the UWSMS can be used as a mechanism to change or remove the restriction post consent. This would be by providing further evidence and	

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	considerations are applied, there should be zero catch in 2023' and that 'Fishing pressure on the stock is below FMSY, and spawning-stock size is below MSY Btrigger, Bpa, and Blim' (ICES 2022). We also pointed to Fox et al. (2000) which reports high site fidelity in cod spawning grounds in the Irish Sea. For these reasons, the MMO and Cefas would have expected you to consider this information, and potentially other sources of data to inform their assessment such as data from the Northern Irish ground fish trawl survey which has been ongoing since 2009 and has several survey stations within the eastern Irish sea (data are available from ICES:		detailed mitigation can be put in place. The MMO believes that the agreed seasonal restriction is on the face of the DML with the UWSMS being able to be submitted to remove/change this requirement post consent. This allows the MMO to be confident that a restriction will be in place in the first instance and shows that the Applicant has to provide evidence and further mitigation once details are known post consent through the UWSMS. The condition below is the most up to date condition, XX has been included as the dates of the condition are still in discussion and will be refined by the end of Examination. ***Underwater Sound Management Strategy*** 1. *— No piling associated with the authorised development may be undertaken between XX to XX inclusive, unless otherwise agreed in writing by the MMO.*	

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	http://datras.ices.dk/). In the absence of any data to suggest that this part of the cod spawning ground is of lower importance than other areas, and in consideration of ICES advice on the cod population in the Irish sea, the MMO and Cefas recommend that piling is not permitted during the cod spawning season and recommend that the following restriction is conditioned on the deemed marine licence: No piling of any kind shall take place during the cod spawning period from 1st January to 30th April (inclusive) of any year. Reason: To prevent disturbance to adult spawning cod during their spawning season.		2. *If activities are deemed necessary in this period and to confirm any additional mitigation requirements an underwater sound management strategy for those activities, which accords with the outline underwater sound management strategy, must be submitted to and approved in writing by the MMO in consultation with the relevant statutory nature conservation body.* 3. *The underwater sound management strategy must be submitted to the MMO no later than six months prior to the commencement of the relevant activities unless otherwise agreed in writing by the MMO.* 4. *The piling activities must be carried out in accordance with the approved underwater sound management strategy, unless otherwise agreed in writing by the MMO.*	

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
RR-047-59	As per our advice on the PEIR, you may wish to consider the use of noise abatement measures such as big as big bubble curtains (BBC) or double BBC during piling, to reduce the noise levels emitted during piling (see Würsig et al. (1999)). UWN modelling incorporating the use of noise abatement measures has been shown to reduce the range of effect for disturbance with sensitive habitats such as spawning grounds.	The Applicant is planning appropriately for the potential requirement for NAS but maintains the position that the effects may be suitably mitigated through further design refinement and other embedded mitigation. The Applicant will seek to discuss further with the MMO (and NE given their comment regarding this in their RR) the structure of an Underwater Sound Management Strategy as a mechanism of agreeing mitigation post-consent, which will also consider measures the Project may need to take in light of potential cumulative effects and in line with other projects on similar timescales. The Applicant will provide an Outline Underwater Sound Management Strategy at Deadline 2 in order to take into account potential further comments from the MMO expected at Deadline 1. The Applicant has added a new condition 30 (Underwater	Please see response to RR-047-58 above.	See response to 1BEM24 in **Table 2.2**.

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
		Sound Management Strategy) in the DML submitted with the updated draft DCO at Procedural Deadline A to secure this. Additionally, the Outline Underwater Sound Management Strategy has been added as document to be certified as one referred to in the DCO.		
RR-047-60	Cefas and the MMO do not support the conclusions made in the CIA that that the cumulative effects of piling noise are deemed to be no greater than project-alone effects 'minor adverse'. We would also add that recent advice for Morgan OWF (DCO/2022/00003) which is located entirely in the Irish sea cod spawning ground we highlighted the likelihood that a seasonal piling restriction to protect	The Applicant acknowledges the overlap of Group 3 noise effect thresholds from the Project and Atlantic cod spawning grounds displayed in Figures 10.8a and 10.8b in Chapter 10 Fish and Shellfish Ecology Figures (APP-094). The CEA conclusions made in Section 10.7.3 in Chapter 10 Fish and Shellfish Ecology (APP-047) are drawn from the wide extent of cod spawning grounds across the Irish Sea and the temporary nature of piling effects in comparison to a four-month spawning period. The Applicant intends to follow the developments in	Please see response to RR-047-58 above.	See response to 1BEM24 in **Table 2.2**.

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	spawning adult cod and their eggs and larvae will be necessary during the spawning season (January – April inclusive). Whilst we have raised a number of points requiring further clarification on their UWN modelling, the modelling that was presented suggests that an extensive overlap of noise disturbance will occur at the spawning ground.	the approach to piling of other nearby projects (in terms of timings, techniques, and mitigations), and will further develop the piling strategy, including any mitigations, in agreement with the MMO post-consent. The Applicant will seek to discuss further with the MMO (and NE given their comment regarding this in their RR) the structure of an Underwater Sound Management Strategy as a mechanism of agreeing mitigation post-consent, which will also consider measures the Project may need to take in light of potential cumulative effects and in line with other projects on similar timescales. The Applicant will provide an Outline Underwater Sound Management Strategy at Deadline 2 in order to take into account potential further comments from the MMO expected at Deadline 1. The Applicant has added a new condition 30 (Underwater		

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
		Sound Management Strategy) in the DML submitted with the updated draft DCO (3.1 Draft Development Consent Order_Rev 02) at Procedural Deadline A to secure this. Additionally, the outline Underwater Sound Management Strategy has been added as document to be certified as one referred to in the DCO.		
Chapter 13 Commercial Fisheries (APP-050)				
RR-047-63	The MMO defers to the National Federation of Fishermen's Organisations (NFFO) along with standalone representatives on matters of commercial fisheries. The MMO will continue to be part of the discussions relating to securing any mitigation, monitoring or other conditions required within the DML.	The Applicant notes this response.	The MMO will continue a watching brief on these matters in relation to the DMLs but these may be in separate sections of the document rather than in a table. The MMO notes that the Applicant has responded to the commercial fisheries related comments from the MMO (Table 2.2 D D2-REP2035-07 and D2-REP2035-08, REP3-069). The Applicant has said they remain engaged with commercial fisheries stakeholders, with the draft SoCG submitted at	The Applicant defers to the draft Statement of Common Ground (SoCG) with Nation Federation of Fishermen's Organisation (NFFO) and Welsh Fisherman's Association (WFA) submitted at Deadline 5 and the updated outline Fisheries Liaison Co-existence Plan (FLCP) (REP4-023) provided at Deadline 4 in response to NFFO comments.

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
			Deadline 1 for the NFFO and Welsh Fisheries Association (WFA) and that an updated SoCG will be submitted at Deadline 4.	
Chapter 11 Marine Mammals (APP-048)				
RR-047-65	With regard to Section 4.2.3 – SW location – installation of single monopile, the MMO and Cefas note that the received SELss versus range (transect curve in Figure 3-5), which are now explicitly included and thus are proving (together with the levels 750 m in Section 4-1) an additional point of reference for the sense checking process, are showing relatively high noise levels, which are well within the values we would expect for sandy seabed environments (i.e., with good propagation conditions). In this scenario,	Following the impact piling modelling presented in the main report Appendix 11.1 Underwater Noise Assessment (APP-065), further investigation into scenarios using higher strike rates were identified for the monopile and pin pile scenarios. A piling hammer is capable of more rapid strikes at lower blow energies. To show the differences between the maximum strike rate scenario and the results presented in Section 4 of Appendix 11.1 Underwater Noise Assessment (APP-065), additional modelling was completed for the SW location. Table 3.1 in the draft MMMP (APP-049) lists the worst-case impact ranges for the	The MMO has no further comments to make at this time.	The Applicant welcomes this response.

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	however, the MMO and Cefas would expect overall larger injury effect ranges for marine mammals (e.g., the maximum PTS (permanent threshold shift) ranges for the LF (low frequency) and VHF (very-high frequency) receptors could be 2-3 times larger). We note that these larger impact ranges seem to align well with the predictions presented in the draft MMMP document (Table 3.1 from the draft MMMP), where, for example, the maximum PTS ranges are 13 km for minke whale and 8.1 km for harbour porpoise, while corresponding ranges from the current Appendix 11.1 are 5.0 km and 3.3 km, respectively. The predicted impact ranges presented in the	project based on the Maximum strike rate scenario listed in Appendix B of Appendix 11.1 Underwater Noise Assessment (APP065) and would be the worst-case impact range to be mitigated and therefore currently used in the assessments.		

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	draft MMMP differ to those ranges presented in Appendix 11.1.			
RR-047-66	The MMO and Cefas note a minor discrepancy in the project description. Table 5.5 in Chapter 5 Project description states that the maximum pile diameter (m) for multi-legged pin piled jacket WTF/OSP foundations is 3 m, whereas the underwater noise modelling in Appendix 11.1 considers a worst-case scenario of installing 5m diameter pin piles.	The Applicant considers the worst-case scenario presented in the underwater noise modelling assessment is appropriate. It is noted that the worst-case for underwater noise modelling considers the largest hammer energy, and the highest strike rate, and includes either three sequential monopiles or four sequential pin piles in a 24hr period. The underwater noise assessment report (Appendix 11.1 Underwater Noise Assessment (APP-065)) presented modelling for larger pile sizes (14m for monopile and 5m for pin piles) as the modelling was undertaken prior to a Project refinement whereby pile diameters were reduced to 12m for monopile and 3m for pin-piles. The modelling is therefore precautionary and	The MMO is content with the Applicant's response and understands a higher diameter has been modelled and has no further comments.	The Applicant welcomes this response.

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
		encompasses the worst-case scenario. The Applicant commits to updated underwater noise modelling post-consent to inform the final MMMP once the selection of foundations have been made. This will inform the appropriate mitigation post consent alongside final design details.		
Chapter 14 Shipping and Navigation (APP-051)				
RR-047-67	MMO defers to the Maritime and Coastguard Agency and Trinity House on matters of shipping and navigation and supports any comments raised. The MMO will continue to be part of the discussions relating to the securing any mitigation, monitoring or other conditions required within the DML.	The Applicant notes this response.	The MMO will continue a watching brief on these matters in relation to the DMLs, but these may be in separate sections of the document rather than in a table.	The Applicant notes this response.

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
Chapter 15 Marine Archaeology and Cultural Heritage (APP-052)				
RR-047-68	The MMO defers to Historic England (HE) on matters of marine archaeology and supports any comments raised. The MMO will continue to be part of the discussions relating to securing any mitigation, monitoring or other conditions required within the DMLs.	The Applicant notes this response.	The MMO will continue a watching brief on these matters in relation to the DMLs, but these may be in separate sections of the document rather than in a table.	The Applicant notes this response.
Chapter 18 Seascape, Landscape and Visual Impact Assessment (APP-055)				
RR-047-69	The MMO defers to NE as the SNCB (Statutory Nature Conservation Body), along with HE and the Local Planning Authorities on matters of Seascape, Landscape and Visual Impacts and supports any comments raised. The MMO will continue to be part of the discussions relating to securing any mitigation and monitoring or other	The Applicant notes this response.	The MMO will continue a watching brief on these matters in relation to the DMLs, but these may be in separate sections of the document rather than in a table.	The Applicant notes this response.

ID	Relevant Representation Comment	Applicant's Response	MMO's Deadline 3	Applicant comment at Deadline 5 (if required)
	conditions required within the DML.			
Chapter 12 Offshore Ornithology (APP-049)				
RR-047-70	The MMO defers to NE as SNCB, and supports any comments raised in relation to the Ornithology. The MMO will continue to be part of the discussions relating to securing any mitigation and monitoring or other conditions required within the DML.	The Applicant notes this response.	The MMO will continue a watching brief on these matters in relation to the DMLs, but these may be in separate sections of the document rather than in a table.	The Applicant notes this response.

Table 2.4 The Applicant's response to MMO's Comments on Applicant's Deadline 2 Submissions

ID	Deadline 2 comment	Applicant comment (if required)
2. Comments on Applicant's Deadline 2 Submissions		
3.2 Comments on the Outline Offshore Operation and Maintenance Plan (OOMP) (REP2-021)		
REP4-064-01	The inclusion of an assessment of general maintenance work, especially that detailing protective coating repair/re-painting, is welcomed as an increase in microplastic emissions from offshore wind farms (e.g., flaking of antifouling paint and erosion of turbine blade leading-edge protection materials) could subsequently impact upon benthic receptors (Tagg et al., 2024; Piarulli et al., 2024).	The Applicant welcomes this response.
REP4-064-02	Three new lines are added to Table 4.1 (page 15) referring to cable protection scenarios: (i) replacement or addition to protection installed during construction, and (ii) deployment of new areas of cable protection within 10 years of start of operations and (iii) new cable protection later than 10 years after the start of operations. The Applicant indicates that only the last of these might require an additional licence. The table quotes the assumed permitted quantities of replacement cable protection based on 10% of that installed during construction. The MMO's current understanding is that if scenarios (i) and/or (ii) were to exceed the 10% assumption, then both (i) and (ii) would also require a new licence. The MMO requests that the Applicant clarifies this point in Table 4.1.	The Applicant notes this response and has clarified this point in Table 4.1 of the Outline Offshore Operation and Maintenance Plan (OOMP) and submitted it at Deadline 5 (Outline Offshore Operation and Maintenance Plan_Rev 03 Clean). It is confirmed that if scenario (i) or (ii) were to exceed the volumes permitted in the Development Consent Order (DCO) then a new marine licence would be required.
REP4-064-03	The MMO would like to note that they do not disagree with the Applicant's suggestions that the removal of guano will not require an additional licence, it should be noted that, any chemicals that are to be used in the removal or re-painting of the structures would require prior notification and approval prior to their use on the offshore wind farm. Table 4.1 also considers grout and corrosion works including cathodic protection inspection and re- grouting. These chemicals should also be notified including the likely frequency and volume of use. The MMO will provide an update on this week commencing 03 March as part of an additional	The Applicant notes this response and has clarified these matters in an updated Outline OOMP submitted alongside this document at Deadline 5 (Outline Offshore Operation and Maintenance Plan_Rev 03 Clean). The Applicant has not received further Project specific input on the chemical condition from the Marine Management

ID	Deadline 2 comment	Applicant comment (if required)
	submission. The MMO notes the ExA may not accept an additional submission and if so the information will be provided at Deadline 5. However, the MMO will work with the Applicant to try and agree a position for Deadline 5. The MMO does note that for chemicals this may be unlikely but will set out full justification as requested for the ExA.	Organisation (MMO) prior to Deadline 5. An email was received from the MMO on 11 March 2025 with links to condition wording used in a submission on a project located off the East Coast without context as to what would or would not be proposed for the Project. Therefore, the Applicant has not been able to provide a comment on the MMO's response. The Applicant remains in consultation with the MMO regarding the wording on chemicals and will update any documents, as required.
REP4-064-04	The MMO welcomes the Applicant's consideration in Table 4.1 of the recovery of dropped objects. The Applicant may wish to note that any information on the composition and nature of these objects during incidents and/or if documented previously can make the assessment of responses/actions required at the time of pollution response easier.	The Applicant notes this response and will endeavour to provide as much information as possible following any potential dropped object incidents.
REP4-064-05	The MMO has no additional comments on the OOMP and once the above clarification is included considers the matter closed.	The Applicant welcomes this response.
3.3 Comments on the Outline Scour and Cable Protection Plan (OSCPP) (APP-152)		
REP4-064-06	The MMO notes that the exact requirements for scour protection are to be identified post-consent. It should be noted that concrete and fronded mattresses, some gabion baskets and mats etc., may use plastics. The MMO would like to see consideration of the use of plastic infrastructure when determining scour requirements, and whether better alternative materials can be used to minimise plastics in the marine environments and the impact of such plastic should it degrade.	An Outline Construction Method Statement (CMS) was submitted at Deadline 4 (REP4-056). The following commitment '*Non-plastic alternatives, if available at the time, will be considered once the requirements are better understood'* is detailed in Table 5.2 of the Outline CMS (REP4-056), and was reflected

ID	Deadline 2 comment	Applicant comment (if required)
REP4-064-07	The MMO notes there is not an outline Offshore Construction Method Statement and requests that a commitment is captured in the commitments register (REP1-094) (and that this is a certified document) that the use of plastic will be fully taken into account in the offshore Construction Method Statement. If this is added the MMO is content this comment is closed.	in an updated Commitments Register at Deadline 4 (Ref. C052 in REP4-047).
3.4 Comments on Environmental Statement Chapter 7 Marine Geology, Oceanography and Physical Processes (REP2-009)		
REP4-064-08	Tracked changes in the ES chapter 7 Marine Geology, Oceanography and Physical Processes include additional reference to UXO and potential clearance requirements. Paragraph 7.17 indicates that a separate licence will be sought for UXO clearance after later surveys, but assessment of the impacts is included in the ES, based on assumptions arising from other windfarm installations – the MMO considers that this is an appropriate strategy. The MMO also notes that deletion of the (former) paragraph 7.377 implies that UXO clearance has been added to cumulative impact assessment considerations, which is also appropriate.	The Applicant welcomes this response.
REP4-064-09	The new section 7.6.2.9 represents the new impact assessment based on high-level estimates (i.e., non-specific location) of UXO clearance expectations. The estimates presented are reasonably detailed, with scales of crater and justified estimates of crater infilling times. The impact assessments are referred to the specified receptors – which are designated conservation areas several kilometres distant, as coastal processes within the site itself are not considered receptors – meaning that assessment of negligible significance is inevitable.	
REP4-064-10	Given the high level assessment and the lack of known locations of UXO at this stage, the MMO notes that the Applicant does not state outright whether there are any specific locations of greater concern within the windfarm area (e.g., reefs or large, stable bed features) that could justify local impact assessment (the MMO assumes this means that there are no such areas, but it is not stated explicitly). The MMO requests the Applicant provides clarification on this point.	There are no specific locations of greater concern within the windfarm site that could justify local impact assessment. Although this is not explicitly detailed in the high-level Unexploded Ordnance (UXO) assessment provided in Chapter 7 Marine Geology, Oceanography and Physical Processes (REP3-012), it is thought that the baseline characterisation provided in this chapter, and Chapter 9 Benthic Ecology (REP3-014)

ID	Deadline 2 comment	Applicant comment (if required)
		provides enough justification that the windfarm site does not contain any specific locations of greater concern (i.e. reefs or large, stable bed features).
3.5 Comments on the Environmental Statement Chapter 9: Benthic Ecology – Revision 02 (REP2-013)		
REP4-064-11	The Applicant has amended Chapter 9 of the Environmental Statement to include a high-level assessment for UXO and notes that a separate marine licence application would be made once the scale of the requirement is understood (through detailed survey and layout refinements). Currently, the MMO agrees with this approach and has no further comments to add.	The Applicant welcomes this response.
3.6 Comments on Environmental Statement Chapter 8 Marine Sediment and Water Quality (REP2-011)		
REP4-064-12	The Applicant has updated the ES Chapter 8 Marine Sediment and Water Quality for references to potential UXO clearance. Paragraph 8.16 indicates that the additions are on the same basis as those to ES Chapter 7. Section 8.6.1.4 contains the added impact assessment of suspended sediment increases due to UXO clearance. This is consistent with the assessment provided in updates to Chapter 7. The resulting assessment of minor adverse (insignificant) effects is also consistent with the other assessments within the ES. The MMO has no further comments to make.	The Applicant welcomes this response.
3.7 Comments on Commercial Fisheries Technical Report Revision 2 (REP2-015)		
REP4-064-13	The MMO notes that in response to the NFFO's concerns that Appendix 13 Commercial Fisheries Technical Report at Deadline 2 (REP2-014 and REP2-015) will include further mapping of fishing grounds for commercial species which is welcomed. The Cefas advisor has reviewed this report and welcomes the informative approach to fisheries mapping presented.	The Applicant welcomes this response.
REP4-064-14	The MMO agrees with the shellfish species listed within the area including Whelk (*Buccinum undatum*), King scallop (*Pecten maximus*), Queen scallop (*Aequipecten opercularis*), Nephrops (*Nephrops norvegicus*), Lobster (*Homus gamarus*) and Brown crab (*Cancer pagurus*).	

ID	Deadline 2 comment	Applicant comment (if required)
REP4-064-15	Consultation with the Fishing stakeholders through the project is important to understand and confirm limited impact assumptions. The MMO will maintain a watching brief on any outstanding issues.	The Applicant notes this response.
3.8 Comments on The Applicant's Comments on Written Representations – Revision 01 (Volume 9) (REP2-027)		
REP4-064-16	With regards to WR-096-23 and WR-096-137; the MMO's position remains that a seasonal piling restriction during the cod spawning season must be included on the DML. The seasonal piling restriction will provide appropriate mitigation to ensure that cod engaged in spawning activity will not be adversely impacted by underwater noise (UWN) arising from piling.	See response to 1BEM24 in **Table 2.2**.
REP4-064-17	The MMO does not agree with the Applicant's comment under WR-096-23 that the UWSMS would be sufficient to secure the necessary mitigation measures to limit impacts on fish receptors without the need for an additional and therefore unnecessary dML condition. The UWSMS sets out the decision-making process on how steps will be taken to mitigate UWN during construction, but it does not provide any evidence to inform our decisions at the consenting stage.	
REP4-064-18	In the absence of evidence that a piling restriction is not required, we must apply the precautionary principle and thus a piling restriction should be included as licence conditions when the DML is granted. The MMO also highlights that project design refinements, the use of noise abatement systems (NAS), and secondary mitigation measures outlined in the UWSMS do not necessarily guarantee that a seasonal piling restriction is not required. Further comments on the UWSMS are provided in section 3.10 of this letter.	
REP4-064-19	With regards to WR-096-112, and WR-096-64, the MMO advises that it is important to consider the implementation of Noise Abatement Systems (NAS) proactively and understands the Applicant is submitting further updates and commitments to MMMP and UWSMS at Deadline 4 and potentially as an additional submission prior to Deadline 5.	See response to 1GEN20 in **Table 2.2**.
REP4-064-20	In regards to WR-096-107, the MMO confirms that the MMMP (REP2-018) has been appropriately updated to clarify this point.	The Applicant welcomes this response.

ID	Deadline 2 comment	Applicant comment (if required)
	In relation to WR-096-110, the MMO does not require further action at this time, this point was raised to highlight awareness. While the EIA categorises the 3.3% population impact on harbour porpoises as "Low" magnitude, the absolute number of 2,037 individuals at risk of TTS is significant. TTS can impair their ability to communicate, navigate, and detect predators or prey, which are critical for their survival. Given other existing threats to harbour porpoises, the additional burden of noise-induced hearing loss should not be underestimated.	
REP4-064-21	The MMO welcomes that low order clearance would be undertaken where possible in acknowledgment of the residual effects. Additionally, the recent policy papers on reducing marine noise published by DEFRA include an updated position statement on UXO clearance. The MMO notes the Applicant is providing further information and commitment in relation to the publication of these documents.	See response to 1GEN20 in **Table 2.2**. which outlines the updates to documents provided at Deadline 4 in relation to new noise guidance (relevant to UXO clearance and piling).
REP4-064-22	Regarding WR-096-111 and WR-096-112, the MMO welcomes that the Applicant will consider the suggestion made by the MMO regarding the use of Effective Deterrent Ranges (EDR) in future Marine Licences for UXO clearance. However, the MMO maintains its previous comments and recommendations.	The Applicant welcomes this response.
3.9 Comments on the Draft Marine Mammal Mitigation Protocol (APP-149)		
REP4-064-23	The MMO does not currently have further comments to make regarding the updated Draft Marine Mammal Mitigation Protocol (MMMP). Appropriate updates and clarifications have been made to the document. The MMO understands the Applicant is submitting further updates and commitments to the MMMP at Deadline 4 and potentially as an additional submission prior to Deadline 5. The MMO is working with the Applicant to review this updates as soon as possible.	The Applicant welcomes this response.
3.10 Comments on the Outline Underwater Sound Management Strategy (REP2-026)		
REP4-064-24	The MMO notes that section 9 of the Morecambe UWSMS outlines further (secondary) mitigation measures which could be implemented to reduce the magnitude of any residual effects (that cannot be fully mitigated by project design changes, or through primary mitigation measures) to a non-significant level.	The Applicant has provided evidence for the peak spawning period in February and March at Deadline 4 in the Underwater Sound Management Strategy (UWSMS) (REP4-050).

ID	Deadline 2 comment	Applicant comment (if required)
	The MMO is largely content with the principle of the Morecambe UWSMS approach (as this approach is also being explored for the Morgan (DCO/2022/00003) OWF project in consultation with the MMO). However, the MMO believes that unless project design refinements can significantly reduce or remove the likelihood of significant impacts occurring to cod from UWN from piling, then additional secondary mitigation measures (likely in the form of noise abatement systems (NAS)) will be required. However, the MMO must highlight that the use of NAS does not automatically remove the requirement for a seasonal piling restriction. The MMO would expect the Applicant to present evidence in the form of UWN modelling, based on the refined project design parameters and the use of NAS, to determine whether there is still a risk of significant adverse impacts to cod. The MMO maintains that a temporal restriction on piling activities during the cod spawning season (1st January – 30th April inclusive) is conditioned on the face of the DML, because the UWSMS does not make the necessary assurances or provide the acquired confidence at this stage that impacts to cod during their spawning season from UWN will be removed or reduced to an acceptable level. The Morecambe OWF project has been developed in close consultation with the Morgan and Mona OWF projects. Both the Morgan and Mona OWF projects have provided evidence to the respective regulators (the MMO and Natural Resource Wales (NRW)) which has allowed the recommended cod spawning period to be evidentially refined to cover the 'peak' of Irish Sea cod spawning activity. It would be possible for the Applicant of the Morecambe project to do the same providing that appropriate evidence is provided. Details of the evidence required to refine the cod spawning period to the 'peak' of spawning activity is detailed in Section 3.11 of this letter. The MMO understands the Applicant is providing this information at Deadline 4 and the MMO is hopeful the agreed restriction period will be agreed by Deadline 5. The MMO request: the following updates are made to the UWSMS:	The reference to temporal phasing has been removed from the UWSMS at Deadline 5 (Outline Underwater Sound Management Strategy_Rev 03 Clean), and now is worded and temporal restrictions. The wording around providing underwater noise modelling at part of the UWSMS to demonstrate mitigation effectiveness in terms of impact ranges has also been added to the UWSMS at Deadline 5. These updates has been shared with the MMO prior to Deadline 5 to inform their response. In regard to the condition around piing restrictions, see response to 1BEM24 in **Table 2.2**.

ID	Deadline 2 comment	Applicant comment (if required)
	▪ The spawning period for Irish Sea cod – this period is a known annual event which occurs regardless of project design changes. Until the Applicant provides suitable evidence for the cod spawning period to be refined to the 'peak' of spawning activity, then the cod spawning period should be captured as 1st January – 30th April, inclusive. These dates should be included in the Morecambe UWSMS to ensure that any secondary mitigation measures being adopted that have a temporal aspect to them are based on the correct spawning period. ▪ Further, the MMO requests that 'Temporal phasing' is removed as a secondary mitigation measure from the UWSMS. As we have requested that temporal licence conditions restricting piling during the cod spawning season should be applied on the face of the DML at the consenting stage. To be clear, all parties should note that a seasonal piling restriction is not the same as 'temporal phasing' as described in the UWSMS, in that a seasonal piling restriction refers to an explicit, legally binding and enforceable condition attached to the Applicant's deemed marine licence with which they must comply. 'Temporal phasing' on the other hand does not carry the same level of binding requirement as specific licence conditions and refers more to voluntarily considerate scheduling of activities around defined periods in time, with the importance of phasing more likely to be driven by equipment availability than the cod spawning period. ▪ The MMO requests adding a short paragraph under the noise abatement part of Section 9, for completeness which states that where NAS may be required to reduce significant noise disturbances with respect to spawning cod, the appropriate investigations will be undertaken which will include UWN modelling to demonstrate the achievable noise reductions relative to the technologies available with respect to the cod high and low intensity spawning grounds.	
REP4-064-25	In line with what has been advised for the Morgan OWF project, which is also located in the Irish Sea, in our experience, mitigation measures in the form of licence conditions are recommended for implementation at the consenting stage. The decision to recommend mitigation in the form of a licence condition is based	

ID	Deadline 2 comment	Applicant comment (if required)
	on the information provided in the Applicant's Environmental Statement (ES), which is based on the maximum design scenario (MDS). It is commonplace for project design parameters to be refined post-consent, and requests are often made to reconsider whether mitigation measures are still necessary when taking into account the changes that have been made to the project. When this happens, a variation to the marine licence may be requested and new evidence is presented for review, such as revised underwater noise modelling based on the refined project parameters. However, the MMO welcomes the information within the Applicant's UWSMS to manage any further mitigation post consent. The MMO understands the need for flexibility by the Applicant. The MMO has proposed that rather than variation to remove the restriction that the UWSMS can be used to provide the evidence and detailed information post consent. The MMO has provided a condition below that provided assurance to ourselves that the impact will be avoided in the first instance (seasonal restriction) and if the Applicant wants to work in that period the UWSMS will be submitted with the additional mitigation options and evidence (in the form of modelling) and the MMO will provide written approval to work in this period.	
REP4-064-26	*Underwater Sound Management Strategy* 1. — *No piling associated with the authorised development may be undertaken between XX to XX inclusive, unless otherwise agreed in writing by the MMO.* 2. *If activities are deemed necessary in this period and to confirm any additional mitigation requirements an underwater sound management strategy for those activities, which accords with the outline underwater sound management strategy, must be submitted to and approved in writing by the MMO in consultation with the relevant statutory nature conservation body.* 3. *The underwater sound management strategy must be submitted to the MMO no later than six months prior to the commencement of the relevant activities unless otherwise agreed in writing by the MMO.*	

ID	Deadline 2 comment	Applicant comment (if required)
	4. *The piling activities must be carried out in accordance with the approved underwater sound management strategy, unless otherwise agreed in writing by the MMO.* This condition is the most up to date condition, XX has been included as the dates of the condition are still in discussion and will be refined by the end of Examination.	
REP4-064-27	The MMO understands that at this stage no new information can be provided to the MMO to provide confidence that the seasonal restriction can be removed from the face of the DML. However, there is still an ongoing discussion in relation to the dates of the restriction and further information will be provided at Deadline 4.	
REP4-064-28	The MMO has requested that the same licence condition restricting piling during the spawning season of Atlantic cod is included in the DML for Morgan OWF. This request is evidence-based and were informed by the Applicant's ES and MDS. This is a standard MMO position– if no/not enough evidence has been provided to provided confidence in a reduction or removal of a restriction, the restriction must remain on the face of the DML.	It is noted that the amendments to the wording provided by the MMO to the Project and Morgan, made by the Applicant above, recognises that the UWSMS is required to be submitted regardless of matters around cod spawning, in respect to marine mammal mitigation.
3.11 Evidence Necessary for Refining the Recommended Piling Restriction During the Cod Spawning Season		
REP4-064-29	The Applicant in their Environmental Impact Assessment and their UWSMS stated that potential moderate adverse effects to spawning cod at the Irish Sea high and low intensity spawning grounds during the spawning period are predicted as a result of the Morecambe project works. For this reason and based on the evidence presented thus far, a full temporal restriction has been requested on the face of the DML to prevent UWN from piling from causing physiological harm to spawning cod. However, it may be possible to refine a piling restriction covering the whole of the cod spawning season – provided that the correct evidence is supplied to support refinement. This approach has been followed for the Morgan OWF project and is an option should the Applicant of the Morecambe OWF wish to pursue it. The MMO has discussed this with the Applicant and believes the Applicant is going to provide this information at Deadline 4.	For clarity, it is the Applicant's maintained position that minor adverse impacts are predicted on cod spawning grounds in the Irish Sea, as set out in Volume 5, Chapter 10 Fish and Shellfish Ecology of the Environmental Statement (ES) (APP-047), and reiterated in the outline UWSMS (REP4-049). The Applicant is mindful of the MMO's differing position on this matter, see response to 1BEM24 in **Table 2.2**.

ID	Deadline 2 comment	Applicant comment (if required)
		The Applicant provided information on the peak spawning period in an updated outline UWSMS for Deadline 4. The evidence was in line with that already submitted by the Morgan Offshore Windfarm (OWF) project, ensuring a consistent approach, and enabling the MMO to take a decision on a consistent basis across projects.
REP4-064-30	Firstly, adequate modelling of the range of impact for physiological effects (mortality and potential mortal injury, recoverable injury, and temporary threshold shift (TTS), as per the pile driving threshold guidelines described by Popper et al. (2014) with regard to cod, must be provided. Cod are broadcast spawners with pelagic larvae so are not reliant on spatially-confined areas of particular seabed habitat for reproduction. This means that cod have the ability to move throughout their spawning grounds and undertake spawning, without their ability to spawn being impaired if they cannot reach a specific area or habitat due to excessive noise disturbances. The high and low intensity cod spawning grounds are quite extensive in the region, and therefore behavioural responses to UWN in cod are not a concern, as in theory, cod could move away from the affected area and spawn elsewhere within their spawning ground. In this sense, the risks of physiological effects in cod from UWN are of greater concern and it is important that the range of impact from UWN based on the thresholds for Group 3 fish with high hearing sensitivity for mortality and potential mortal injury (207 cumulative sound exposure level cumulative sound exposure level (SELcum), recoverable injury (203 SELcum), and TTS (186 SELcum), as per the pile driving threshold guidelines described by Popper et al. (2014), are presented so that the physiological risks to cod can be properly assessed.	Adequate modelling of the range of impacts, based on the worst-case piling scenario as per the pile driving threshold guidance set out by Popper *at al.,* (2014), has been presented in 5.3.10 Chapter 10 Fish and Shellfish Ecology Figures (Volume 5) (PD1-008) and 5.1.10 Environmental Statement Chapter 10 Fish and Shellfish Ecology - Revision 03 (Volume 5) (Clean) (REP3-016), and forms the basis of the assessment. Updated modelling, based on further mitigation measures and Project design refinements would be submitted as part of the UWSMS, to be agreed with the MMO.
REP4-064-31	The Applicant should provide a discussion which draws on upon suitable peer-reviewed sources and data which provides supporting evidence that cod spawning activity peaks in February and March. For example, Ellis et al., (2012) denotes the cod spawning season as taking place from January to April inclusive, with peak	The Applicant provided this information on the peak spawning period in an updated outline UWSMS for Deadline 4. The evidence was in line with that already submitted by the

ID	Deadline 2 comment	Applicant comment (if required)
	spawning taking place in February and March. The Applicant should consult Maxwell et al., (2012) and Armstrong et al., (2012) to support their discussion of peak months for cod spawning in the Irish Sea. Maxwell et al., (2012) used ichthyoplankton survey data from 2008 for Irish Sea plaice, cod and haddock to estimate annual egg production during the 2008 spawning season using advanced generalized additive models (GAM).	Morgan OWF project, ensuring a consistent approach, and enabling the MMO to take a decision on a consistent basis across projects. The supporting evidence for cod spawning activity peaking in February and March draws upon Ellis *et al*., (2012) Maxwell *et al*., (2012), and Armstrong *et al*., (2012).
REP4-064-32	As part of this study, spatial patterns of modelled and observed egg production (no. m−2 day−1) for cod, based on survey data collected we presented in a 'heat' map format showing areas of higher/lower egg production within in the Irish Sea region. For cod, there were clear hot spots for egg production in the east and west Irish Sea. The authors also correlated spatial patterns of modelled and observed egg production with the timing of the ichthyoplankton surveys to examine when cod egg production for the 2008 spawning season peaked.	
REP4-064-33	Armstrong et al., (2012) then summarised the results of applications of annual egg production methodologies (including those used by Maxwell et al.,) to estimate the spawning stock biomass of cod and other species in the Irish Sea in 1995, 2000, 2006, 2008 and 2010. Armstrong et al., (2012) expanded the GAM analyses to present the spatial patterns of daily egg production of cod (no. m−2 day−1) for the years 2006 – 2010. Armstrong et al., (2012) also examines the seasonal patterns in egg production fitted by the GAM for spawning in the east and west of the Irish Sea. The authors note that the timing of spawning between the east and west tended to differ and the results of the analyses show considerable interannual variation in timing and level of productivity in cod egg production.	
REP4-064-34	It should be noted that both studies recognise that egg production by Irish Sea cod has declined over time, with a sharp drop recorded 2010 (Armstrong et al., 2012) and the International Council for the Exploration of the Sea (ICES) advises there should be zero catch for Irish sea cod in 2025 when the maximum sustainable yield approach and precautionary considerations are applied (ICES, 2024). This indicates that the Irish Sea cod stock is already under pressure. Maxwell et al., (2012) and Armstrong et al., (2012) are appropriate sources for informing discussions on temporal refinement of the recommended piling restriction but	

ID	Deadline 2 comment	Applicant comment (if required)
	given the age of these publications, it would strengthen the Applicant's position for a refinement if updated data were presented in a similar format.	
REP4-064-35	This data may take the form of ichthyoplankton data for the Irish Sea to indicate areas of higher or lower cod larval abundance, or Northern Irish Ground Fish data (NIGFS) which could be filtered to separate out female cod caught within each trawl per year and the maturity classes of interest (spawning and spent fish) taken as a subset to characterize where spawning-ready and post-spawning adult female cod are located. The MMO recommends the Applicant contact the Agri-Food and BioSciences Institute (AFBI) in Northern Ireland to find out what survey data is available for this purpose.	The Applicant acknowledges that an analysis of Northern Irish Ground Fish (NIGFS) data has been presented by Morgan OWF to the MMO as additional evidence for a peak in Irish Sea cod spawning from mid-February to mid-March. Rather than re-running an identical analysis on identical data, and in agreement with the MMO, the Applicant references the information presented by Morgan OWF on this matter as further evidence (which is submitted into Examination for the Project, **Appendix A** of this document) to support the proposed peak spawning period for the Project.
4. Comments on Applicant's Deadline 3 Submissions		
REP4-064-36	At this time the MMO has no comments to raise regarding REP3-006, REP3-007, REP3-009 REP3-013, REP3-012, REP3-014, REP3-015, REP3-016, REP3-016, REP018, REP3-019, REP3-039, REP3-40, REP3-04	The Applicant welcomes this response.
REP4-064-37	The MMO is currently reviewing REP3-043, REP3-044, REP3-046, REP3-045, REP3-060, REP3-061 REP3-068, REP3-069 and may provide further comments in due course. The MMO notes that these documents may be updated further at Deadline 4 and as an additional submission following meetings with the MMO and SNCB. The MMO will provide comments on the latest version of the documents.	The Applicant looks forward to receiving any further comments from the MMO on these documents.
5.Comments on the Draft DCO and DML		
REP4-064-38	The MMO provided comments regarding the draft DCO and DML in section 3.2 of its submission for Deadline 3 (REP3-085). The MMO notes that the Applicant has provided further comments in response to comments raised by the MMO's Deadline 2 response regarding the draft DCO and DML in the Applicant's Deadline	The Applicant defers to its responses on all matters regarding the Draft DCO and deemed Marine Licence (DML) in Section 2.1 of The Applicant's Comments on Deadline 3

ID	Deadline 2 comment	Applicant comment (if required)
	3 submission (REP3-069). The MMO believes further information will be provided by the Applicant at Deadline 4 in response to REP3-085.	Submissions by Interested Parties (REP4-058).
REP4-064-39	The MMO will review the Applicant's response and provide further comments direct to the Applicant and to the ExA as an additional submission week commencing 03 March or at Deadline 5. The MMO and the Applicant had a meeting on 14 February to discuss the SoCG and DCO/DML matters and are aiming to get everything that will be agreed by Deadline 5. The MMO would highlight that there is likely to be a number of matters not agreed – material impact. This will likely be: ▪ Transfer of Benefit ▪ Force Majeure ▪ MMO Determination date ▪ Chemical requirements ▪ Decommissioning requirements ▪ Adaptive management	The Applicant concurs that the following items will remain as not agreed ▪ Transfer of Benefit ▪ Force Majeure ▪ MMO Determination date ▪ Decommissioning requirements Regarding the MMO determination date, the Applicant notes the Examining Authorities (ExA's) comment in ExQ2 (2DCO4). The Applicant is supportive of any efficiencies to the consenting process, but it is also cognisant of resourcing constraints and workload pressures. The Applicant considers that the current timescales for determination of four months within condition 10(2) are appropriate, but it will defer to the ExA and the Secretary of State (SoS) on this matter. In regard to Adaptive management, no comments have been received in relation to this from the MMO to date and as such an area of disagreement is not anticipated.
6. Comments on Applicant's Deadline 3 Submissions from Other Stakeholders		
6.1 Joint Nature Conservation Committee (JNCC) (REP3-082)		
REP4-064-40	The MMO notes that JNCC has concerns that the draft MMMP would not sufficiently reduce the risk of injury from piling noise and that the MMMP is not	It is noted that the draft Marine Mammal Mitigation Protocol (MMMP) was updated at

ID	Deadline 2 comment	Applicant comment (if required)
	sufficient to support the conclusions of the Report to Inform Appropriate Assessment conclusions and have requested further consideration of the MMMP.	Deadline 4 to strengthen mitigation commitments (REP4-027).
REP4-064-41	The MMO defers to the Statutory Nature Conservation Body (JNCC and NE) with regards to matters relating to designated sites.	The Applicant notes this response.
REP4-064-42	The MMO will review any updates made to the draft MMMP and provide comments where required.	
6.2 Natural England (REP3-091)		
REP4-064-43	The MMO notes that there are major/complex comments raised by NE regarding the UWSMS. NE advises that the UWNSMS does not address the need for additional mitigation measures and that the UWNSMS should contain a commitment to the use of NAS to mitigate residual impacts.	Please refer to the Applicant's response to Natural England's (NE's) most recent Deadline 4 submission in **Table 2.7** below.
REP4-064-44	The MMO has noted that NAS must be used proactively and understands the Applicant is updating documents on the back of further discussions with NE.	
REP4-064-45	NE has also drawn attention to the publication of DEFRA's new measures to curb underwater noise and accelerate renewable energy. The MMO has also highlighted these documents.	
6.3 Corporation of Trinity House (TH) Deptford Strond (REP3-100)		
REP4-064-46	The MMO notes TH has requested that Schedule 6, Part 2, Paragraph 6 (Colouring of structures) sub-paragraph (1) is amended. The MMO is in support of this request.	The Applicant has reinstated the original wording of Condition 6 in the version of the draft DCO submitted at Deadline 4 (REP4-002).

8. The following table details the MMOs comments on the Rule 17 Letter (PD-013). The Applicant has responded below, where required, and has not included any rows where the MMO defers to NE to respond (ID R17.1.6, R17.1.9) or where the MMO were asked by the ExA to clarify something that the Applicant has no response to (ID R17.1.14).

Table 2.5 The Applicant's response to MMO's Comments on Response to Rule 17 Letter

ID	Question to	Question	MMO Response	Applicant response (if required)
General and Cross-topic Questions (GEN)				
R17.1.1	Natural England (NE) Marine Management Organisation (MMO)	**Written Ministerial Statement of 29 January 2025 and associated guidance documents** NE and the MMO are invited to make comments on the following: • the Written Ministerial Statement number UIN HCWS394 • the DESNZ guidance on 'Strategic compensation measures for offshore wind activities:	In relation to Morecambe the MMO understands that there is a disagreement on the need for compensation and the Assessment conclusions. The MMO defers to NE on these matters. However, the MMO notes the Applicant has provided a without prejudice compensation position which is in line with the guidance. This does reference the MRF as an option should compensation be included but this would be agreed at the post consent stage as other project specific options are also retained, which is in line with expectations and current practice. The MMO would highlight that the MRF does not currently include a compensatory measure for Red Throated Diver and this should be reflected within the documents. The MMO notes that UXO is not included within the DCO and that a new Marine Licence will be applied for post consent. The MMO is content with this approach, as this is the best way for UXO's to be licenced. The MMO notes the Applicant is reviewing the policies and papers in relation to UWN and updates will be provided at Deadline 4. The MMO will provide any comments to the ExA on these updates at Deadline 5 and will continue working with the Applicant to enable any updates to be included in documents submitted at Deadline 5.	Please refer to the Applicant's response to this Examiners Questions (ExQ1) in **Table 2.6** below.

ID	Question to	Question	MMO Response	Applicant response (if required)
		Marine Recovery Fund interim guidance' • the Defra Policy Paper 'Reducing Marine Noise' • the JNCC 'Guidelines for minimising the risk of injury to marine mammals from unexploded ordnance (UXO) clearance in the marine environment'. insofar as they may affect the consideration of the Proposed Development. Could NE and MMO respond both generally and with particular reference to:	In relation to piling the expectation is that NAS will be committed to as the primary mitigation and further evidence should be provided at this stage on the use of NAS. In relation to UXO (Defra policy Paper - Marine environment: unexploded ordnance clearance Joint Position Statement) the MMO notes the main update for UXO is that low order tools will be used as standard and high order will only be used in exceptional circumstances. There is also a two-step licensing approach, this means there is a requirement for the UXO investigations licence to be completed prior to submission of the UXO clearance licence. The Applicant will need to plan this within their programming. In addition to this In relation to JNCC 'Guidelines for minimising the risk of injury to marine mammals from unexploded ordnance (UXO) clearance in the marine environment', the MMO would expect the Applicant to review this as part of the submission to the MMO for the separate UXO marine licence. The MMO has not further comments on Permanent Threshold Shift. In relation to the Offshore wind piling noise limit, the MMO notes DEFRA is leading this project and it is at the early stages as consultation is the next step. If any changes are implemented that impact the conditions set out within the DML then the MMO will discuss this with DEFRA and DESNZ to understand if a review of consents is required at the time of any new guidance. The MMO notes that if NAS is utilised there may not be a requirement to change any DML. Until further	

ID	Question to	Question	MMO Response	Applicant response (if required)
		• Unexploded Ordnance • Permanent Threshold Shift • Offshore wind piling noise limit.	information on the limits is provided the MMO cannot provide further comments.	
R17.1.2	MMO	**Outstanding information** The MMO is asked to ensure that all responses which were stated as being provided either by Deadline 4 or "in due course" are provided at Deadline 4. Should information not be provided at Deadline 4, a full explanation as to why this is the case must be provided at Deadline 4 and a specific date	The MMO has provided updates to previous responses throughout this letter. Where an update has not been provided, the MMO has been specific about which deadline this will be submitted at. The MMO understands the ExA has requested no updates to documents by the Applicant after Deadline 5 so all parties can comment on these updates. The MMO understands the need to comment on the documents but notes that there is over a month between Deadline 5 and Deadline 6 and this is valuable time to continue to resolve issues with the Applicant. These may require additional updates to the documents at Deadline 6. The MMO would highlight that there are a number of NSIPs (offshore wind farm projects and other industries) in Examination at this time and even with the Rule 6 requests of staggering deadlines and working with other ExAs there are a number of overlapping deadlines. Capacity for all interested parties is limited and the MMO had to make the decision to stagger responses to enable case teams and our scientific advisors the time to effectively provide a detailed response. The MMO also made the decision that attendance at ISH was not required – as this is a written process the MMO would utilise the written process as the main priority. The MMO understands that any delay	The Applicant notes this response.

ID	Question to	Question	MMO Response	Applicant response (if required)
		given for provision. Please note the comments in the covering letter.	impacts the ExA's understanding, but the position interested parties in at this time means this is the only option. Reducing Examination further causes additional impacts to the capacity. The MMO is working closely with the Applicant to agree as much as possible as soon as possible but would also highlight that a lot of the technical issues have been outstanding since prior to submission.	
R17.1.3	MMO	**Disposal site(s)** The MMO response to the Applicant's response RR-047-47 says that the MMO is "currently working to designate disposal sites and will provide further comments in due course". A full update should be provided at D4, including the extent of any proposed designated sites.	The MMO and the Applicant had a meeting on 14 February, the MMO received a shape file of the red line boundary (assessed disposal site area) after this meeting and is reviewing all information and working with our scientific advisors to designate the disposal site. The MMO is aiming to receive confirmation early March and will provide the reference number to the Applicant to be updated in the disposal conditions on the DML for Deadline 5.	Please see response to RR-047-53 above.

ID	Question to	Question	MMO Response	Applicant response (if required)
R17.1.4	MMO	**In Principle Management Plan (REP3-045)** Bearing in mind the MMO's current timetable for its standardisation project, what further information would the MMO like to see included within the In Principle Management Plan, other than a general commitment to ensuring that any standards or best practice adhered to during monitoring are outlined clearly within the relevant monitoring reports?	The MMO would like to see a clear commitment to ensuring that any standards or best practice will be adhered to during monitoring in the IPMP. Any standards will be accepted by industry through the project so all future submissions would be required to follow the same approach and the MMO is just asking that this is highlighted within the IPMP. The MMO understands the Applicant is going to update the IPMP and will review the updates and discuss any changes required prior to Deadline 5.	The Applicant updated the In Principle Monitoring Plan (IPMP) at Deadline 4 (REP4-025) to incorporate the following bullet in Paragraph 17: "*In the development of detailed monitoring methods post-consent (for receptors identified as requiring monitoring), including data collection and reporting, the Applicant will consider the application of standardisation where widely recognised agreed standards for monitoring already exist at the time."* The Applicant has not received further feedback from the Marine Management Organisation (MMO) on the IPMP prior to Deadline 5. The Applicant looks forward to receiving MMO's comments on the updated IPMP (REP4-025) at Deadline 5.

ID	Question to	Question	MMO Response	Applicant response (if required)
		Please be as specific as possible.		
R17.1.5	MMIO	**MMO Response to ExQ1 BEM24** The MMO (REP2-035) has indicated that, whilst an Underwater Sound Management Strategy (REP2-026) has been provided, a condition limiting piling during the cod spawning period is still necessary, and that MMO will supply updated wording 'in due course'. Please ensure that this is submitted at Deadline 4 or equivalent wording to	The MMO has provided further comments including a condition regarding the Underwater Sound Management Strategy in Section 3.10 of this letter. The MMO has included XX as the dates as these are still in discussion with the Applicant in relation to the refinement of these. The MMO understands the Applicant is provided evidence set out in Section 3.11 above at Deadline 4. Once the agreement has been provided then the dates can be updated within the condition. As above there is a disagreement with the Applicant on the requirement for the restriction on the Face of the DML – this will likely be a 'Not agreed – material impact' at the end of examination. Until suitable evidence is provided to provide confidence to remove the restriction (the MMO understands this will not be possible by the end of the Examination), the restriction must remain on the face of the DML as the main form of avoidance/mitigation of impacts to cod.	See response to 1BEM24 in **Table 2.2**. It is also noted evidence for the peak cod spawning period was provided at Deadline 4 and supplemented at Deadline 5 (**Appendix A** of this document).

ID	Question to	Question	MMO Response	Applicant response (if required)
		inform the Underwater Sound Management Strategy.		
R17.1.7	NE and MMO	**Thresholds for the onset of behavioural responses** NE's Risk and Issues log (REP3-093) in D40 notes that the dose-response curve approach has not been used to determine the number of common dolphin impacted at White Cross. This is contrary to what is stated in Paragraph 11.760. The approach used (TTS) is not sufficiently	The MMO does not consider it appropriate to use TTS onset thresholds as a proxy for disturbance and maintains the original comments and recommendations (see REP1-096, Section 2, Table 1, RR-047-32). The MMO notes that for quantifying the risk of behavioural responses, assessments may apply dose-response curves for proximity to the sound source and received sound level. Approaches based directly on the "distance of effect" reported for in situ behavioural studies (e.g., Merchant et al., 2018) can also be used as an empirical estimate of the risk of behavioural responses (Gomez et al., 2016), provided that the sound level of the noise source in the cited study is not substantially exceeded in the assessment scenario. Similarly, the SNCB guidance (JNCC, 2020) lays out advice on the assessment of significant disturbance in UK SACs for harbour porpoise. The advice is to use fixed disturbance distances (in the form of EDRs) for different activities, based on empirical evidence. These EDRs could also be used in impact assessments in the absence of more bespoke scientific evidence for the species and noise source concerned. Since harbour porpoise are relatively skittish and sensitive to underwater noise, the EDRs are likely to be conservative for other marine mammal species and are therefore a suitably precautionary option in the absence of other data (unlike using TTS as a proxy for disturbance).	It is considered there is no material impact on the assessment provided considering both the position of the MMO and the Applicant. The Applicant will however take account of MMO's position when undertaking the Marine Licence Application for Unexploded Ordnance (UXO) clearance as required, noting this assessment will also take into account the latest guidance on the mitigation requirements and assessment methodologies.

ID	Question to	Question	MMO Response	Applicant response (if required)
		precautionary for a disturbance impact and is not consistent with how the other projects in the area have been assessed. NE and the MMO are requested to provide further information in light of the Applicant's view that the assessment is sufficiently precautionary.		
R17.1.8	MMO	**Draft Marine Mammal Mitigation Protocol and outline Underwater Sound Management Strategy** Please provide your comments on	The MMO does not currently have further comments to make regarding the updated draft MMMP. The MMO have provided comments regarding the outline Underwater Sound Management Strategy (REP2-026) in Section 3.10 of this letter. However, the MMO notes the Applicant is due to submit updated versions of these documents either at Deadline 4 or as an additional submission prior to Deadline 5. The MMO has requested early sight of these documents to be able to provide further comments with the aim of agreeing the detail for Deadline 5.	The Applicant provided the MMO with the updated Outline Underwater Sound Management Strategy (UWSMS) submitted at Deadline 5 on 5 March 2025 to inform their Deadline 5 submission. The Applicant will respond to any further comments provided by the MMO at Deadline 5 within Deadline 6 submissions.

ID	Question to	Question	MMO Response	Applicant response (if required)
		the draft Marine Mammal Mitigation Protocol (REP2-018) and outline Underwater Sound Management Strategy (REP2-026) and how these will interact with each other.		
R17.1.10	MMO	**Article 7: Benefit of Order** The Marine and Coastal Areas Act 2009, and in particular Part 4 which deals with Marine Licences, is relevant. Section 113 of that Act is under the heading “the appropriate	As per the Explanatory Memorandum https://www.legislation.gov.uk/uksi/2015/1674/pdfs/uksiem_20151674_en.pdf (the MMO can add this as a PDF if required by the ExA), the MMO acts under delegated powers from the secretary of state in respect of licensable act	The Applicant notes this response, which aligns with its response to Action 25 contained in 9.54 Response to Actions arising from Issue Specific Hearings 2, 3 and 4 - Revision 01 (Volume 9) (REP4-061).

ID	Question to	Question	MMO Response	Applicant response (if required)
		licensing authority" and determines who is the appropriate licensing authority for any given area. Subsections (2), (4) and (6) deal with Scotland, Wales and Northern Ireland waters respectively, and subsection (8) sets out "In relation to any area not mentioned in subsection (2), (4) or (6), the appropriate licensing authority is the Secretary of State. Please could the MMO indicate whether its powers in respect of		

ID	Question to	Question	MMO Response	Applicant response (if required)
		licensable activities were transferred from the Secretary of State or whether it acts under delegated powers from the Secretary of State.		
R17.1.12	MMO	**Deemed Marine Licence** The MMO has indicated a desire for a condition 7(1) relating to all chemicals and substances used below MHWS. The MMO is asked to explain: • why such a provision is necessary, noting it has not been requested on	The MMO will provide an update on this week commencing 03 March as part of an additional submission. The MMO notes the ExA may not accept an additional submission and if so the information will be provided at Deadline 5. However, the MMO will work with the Applicant to try and agree a position for Deadline 5. The MMO does note that for chemicals this may be unlikely but will set out full justification as requested for the ExA.	The Applicant has not received further Project specific input on this item from the MMO prior to Deadline 5. An email was received from the MMO on 11 March 2025 with links to condition wording used in a submission on a project located off the East Coast without context as to what would or would not be proposed for the Project. Therefore, the Applicant has not been able to provide a comment on the MMO's response. The Applicant remains in consultation with the MMO regarding the wording on chemicals and will update any documents, as required.

ID	Question to	Question	MMO Response	Applicant response (if required)
		recent examinations • why it requires ten weeks in which to make any approvals (this needs to be fully justified, setting the MMOs internal procedures involved) • whether it would be possible to set out a schedule of materials that, for want of a better expression, have deemed approval and if so could this please be provided.		
R17.1.13	MMO	**Deemed Marine Licence** The MMO has indicated that it is looking for	The MMO has agreement from MCA on the following wording, noting the telephone number stated in (a) is to be confirmed: *(7) (10) (a) Debris or dropped objects which are considered a danger or hazard to navigation must be reported as soon as reasonably practicable but no later*	The Applicant agrees in principle with the proposed condition and suggests that the reporting is linked to guidance for projects in English waters which it understands from the MMO is forthcoming.

ID	Question to	Question	MMO Response	Applicant response (if required)
		revised drafting for condition 7(10) in respect of dropped objects. Could this please be provided at D4.	*than six hours from the undertaker becoming aware of an incident, to the relevant HM Coastguard Maritime Rescue Co-ordination Centre by telephone (add number), and the UK Hydrographic Office email: navwarnings@btconnect.com.* *(b) All dropped objects including those in (a), must be reported to the MMO using the Dropped Object Procedure Form (including any updated form as provided by the MMO) as soon as reasonably practicable and in any event within 24 hours of the undertaker* *becoming aware of an incident, unless otherwise agreed in writing with the MMO.* *(c) On receipt of notification or the Dropped Object Procedure Form the MMO may require relevant surveys to be carried out by the undertaker (such as side scan sonar) if reasonable to do so and the MMO may require obstructions to be removed from the marine environment at the undertaker's expense if reasonable to do so.* The MMO is currently reviewing the Dropped Object Procedure and there is a potential of a change of wording to align with Marine Directorate - https://www.gov.scot/publications/offshore-renewables-accidental-deposit-of-an-object-at-sea-form-and-guidance/ (The MMO can PDF this webpage if requested by the ExA).This change shouldn't alter the requirement by the Applicant or any changes to the DML as (b) identifies what should be submitted it would just be a change in wording. The aim of this update is to ensure that reports must be made no later than 6 hours after the incident has been	Following discussion on 4 March 2025, the Applicant has provided amended condition wording to the MMO for further consideration and is reflected in the updated draft dML (Draft Development Consent Order_Rev 05 Clean) submitted at Deadline 5.

ID	Question to	Question	MMO Response	Applicant response (if required)
			discovered for more major 'deposits' i.e. those that may be hazardous to shipping and within 24 hours of the incident being discovered in all other cases. A defined list of major deposits cannot be provided due to the nature of the activity. If the Project is in doubt whether an object is a danger/hazard to navigation then we would encourage them to assume it is and report it within 6 hours as per the condition.	
R17.1.15	MMO	**Deemed Marine Licence** Condition 8 deals with Force Majeure. At D2 the MMO indicated it would respond further at D3, but no response was received. Could you please confirm its position either way, and if you are not content please review the recording from the hearing and provide a response.	The MMO provided further comments regarding Condition 8 within Section 3.2 (3.2.18 to 3.2.28) of its Deadline 3 Response (REP3-085). Please note condition 8 was mistakenly referred to as condition 19 in paragraphs 3.2.18 to 3.2.28 of REP3-085. The MMO maintains its position regarding Force Majeure, and does not consider it necessary to be included within the DML. The MMO will review the Applicant's response to REP3-085 and continue discussions with the Applicant. However, the MMO believes this will likely be 'not agreed – material impact' at the end of Examination.	The Applicant remains in discussion with the MMO regarding the wording of Condition 8, however, notes that this will likely be 'not agreed – material impact' at the end of Examination.

ID	Question to	Question	MMO Response	Applicant response (if required)
R17.1.16	MMO NE	**Deemed Marine Licence** In condition 9(1)(c) there is a reference to a four month prior approval period. The MMO and NE are asked to justify why they each need a six month period. This needs to be fully justified, setting out the MMOs and NE's internal procedures involved.	The MMO notes the Applicant has agreed to a six month approval period as set out in Section 1, Table 1, 1DCO7,above therefore has not provide further comments on this response. The MMO is still discussing some of the other documents that are set at four months and will provide further comments at Deadline 5 if this is still a concern. The MMO still maintains a major concern on Condition 10(2) as set out in Section XX of this document.	The MMO and Natural England (NE) have discussed timescales for the approval of all plans and documentation and the Applicant has updated the draft Development Consent Order (DCO) in line with this at Deadline 5 (Draft Development Consent Order_Rev 05 Clean). The Applicant remains in discussion with the MMO regarding the wording of Condition 10(2) and notes that ExQ2 2DCO4 also refers to this condition. The Applicant will respond to MMO comments on this in their Deadline 5 submission. Any necessary updates will be incorporated into the draft DCO at Deadline 6.
R17.1.17	MMO NE	**Deemed Marine Licence** Please could the MMO confirm either way whether the current drafting of condition 9(1)(e) is	The MMO is largely in agreement with the wording, however, is providing further information in relation to chemical assessments (as per R17.1.12) which links with 9(1)(e)(ii) – confirmation will be provided week commencing 03 March as part of an additional submission. The MMO notes the ExA may not accept an additional submission and if so the information will be provided at Deadline 5. However, the MMO will work with the Applicant to try and agree a position for Deadline 5. The MMO does note that for chemicals this	The Applicant has not received further Project specific input on this item from the MMO prior to Deadline 5. An email was received from the MMO on 11 March 2025 with links to condition wording used in a submission on a project located off the East Coast without context as to what would or would not be proposed for the Project. Therefore, the

ID	Question to	Question	MMO Response	Applicant response (if required)
		satisfactory. If not, please explain why, providing alternative wording.	may be unlikely but will set out full justification for each update required.	Applicant has not been able to provide a comment on the MMO's response. The Applicant remains in consultation with the MMO regarding the wording on chemicals and will update any documents, as required.
R.17.1.18	MMO	**Deemed Marine Licence** A number of conditions suggested by the MMO include the phrase "unless otherwise agreed in writing by the MMO". In light of the High Court decision in Midcounties Co-operative Ltd v Wyre Forest DC (2009) EWHC 964 the MMO is asked to justify why this wording in required in	The MMO is still considering the High Court decision and will provide any comments or updates week commencing 03 March as part of an additional submission. The MMO notes the ExA may not accept an additional submission and if so the information will be provided at Deadline 5. However, the MMO note the Applicant also agrees with the flexibility of this wording. The MMO believes the inclusion of *'unless otherwise agreed in writing by the MMO'* allows flexibility post consent in relation to the submission timescales and information within documents. This is currently set out in Conditions 2(4), 7(1), 9(1)(c), 10, 14, 15, 16 and 20. The reason for this inclusion is not to change the agreed parameters within the DML or approve more than has been assessed at the post consent stage, but to allow for flexibility in processing or as part of the discussions in relation to the MMO's regulatory duties in discharging documents. This provides a clear audit of any decisions or changes to the specified wording – rather than a full variation being required. All documents have a requirement for consultation but on occasion this has been short notice as issues have occurred during construction or while conducting surveys. Another example could be due to weather and Health and Safety impacts the survey was due to take place 1	The Applicant has not received further Project specific input on this item from the MMO prior to Deadline 5. The Applicant will continue to discuss the position with the MMO in respect of this wording. As noted in 3.4 Schedule of Changes to the Draft Development Consent Order (Rev 04) (Tracked) - Revision 03 (REP4-006), the Applicant has deleted this wording where it cuts across the fundamental purpose of a condition. It has left in this wording where it is clearly linked to more minor points within the condition, such as the period of time for agreeing or submitting materials (e.g. paragraph 20(2)). The Applicant would note that Schedule 6 Part 1 paragraphs 8 and 9(1) give flexibility in discussions around amendments (in addition to variations) of documents submitted pursuant to conditions. Schedule 6 Part 2 paragraph 3 (extension of time

ID	Question to	Question	MMO Response	Applicant response (if required)
		each case. Examples include conditions 14 and 20.	March within the approved document but this couldn't not start and the MMO in consultation with relevant interested parties could decide that it was ok to start 5 March. The MMO requests if the ExA requires any further clarification on this matter that another questions is provided with specifics.	periods) then allows for timescales to be extended with agreement.
R17.1.19	MMO	**Deemed Marine Licence** The MMO has indicated it will provide an update to condition 15(1) in due course. Please provide a full response by Deadline 4.	The MMO is still in discussion with SNCBs in relation to the condition and the standard agreed condition is unlikely to be ready within this Examination. Due to this the MMO raised this within the meeting with the Applicant on 14 February. The MMO has requested within the first 4 piles 2 piles to be the worst case scenario and is awaiting further information from the Applicant on this request. The MMO would note that this request has been discussed on the Morgan OWF project. Although they cannot do the first four piles further discussion has been undertaken and as they have 16 worst case piles identified they have agreed to monitor the first two of these piles. The MMO notes that this is slightly different to the Applicant's project but hopes to continue the discussion with the aim to agree any changes by Deadline 5.	The Applicant remains in discussion with the MMO regarding updates to Condition 15(1). Any updates will be incorporated into the draft DCO at Deadline 6. The Applicant notes that the Project is considerably smaller than the Morgan Generation project and therefore considers that additional requirements to monitor more than the first four piles would be disproportionate considering the maximum 35 WTGs to be installed. It should also be noted that, from a practical engineering perspective, it would not be possible to pile the most challenging locations first given that there would be operational procedures to test and adapt for the initial pile installation(s) and this would not be carried out at the most challenging location for ground conditions. The Applicant highlights that the entire foundation installation

ID	Question to	Question	MMO Response	Applicant response (if required)
				campaign has been given an indicative timescale of six months in Chapter 5 Project Description (REP-1-022). Any requirement for monitoring of additional monopile installation beyond the first four piles would require additional time (a further 6 weeks following the monitored piling in the dDCO) to analyse the data and submit to the MMO, potentially towards the end of the Wind Turbine Generator (WTG) construction campaign. There would be little benefit in such results arriving for consideration as the piling campaign would be reaching its closing stages.

2.3 Natural England (REP4-065 – REP4-066)

9. Please note that NE submitted two separate submissions at Deadline 4:

- REP4-065 is NE's Comments on Rule 17 letter to Natural England and Marine Management Organisation and is responded to, where required, in **Table 2.6**
- REP4-066 is NE's Deadline 4 submission and is responded to within **Table 2.7**. Please note that the Applicant has only responded to Appendix B9 and G2 of this submission, as the mid-Examination Principal Areas of Disagreement Summary Statement (PADSS) has been responded to in detail in The Applicant's Comments on Natural England's Risk and Actions Log at Deadline 4 (Document Reference 9.58) (see bullet below)
- REP4-067 is NEs Risk and Actions Log and has been responded to in a separate document, submitted alongside this document at Deadline 5 (Document Reference 9.58).

Table 2.6 The Applicant's response to NE's Comments on Rule 17 letter to Natural England and Marine Management Organisation (REP-4-065)

Ref	Question to:	Question	NE response	Applicant response
R17.1.1.	NE MMO	**Written Ministerial Statement of 29 January 2025 and associated guidance documents** NE and the MMO are invited to make comments on the following: • the Written Ministerial Statement number UIN HCWS394 • the DESNZ guidance on 'Strategic compensation measures for offshore wind activities: Marine Recovery Fund interim guidance'	The Written Ministerial Statement principally relates to benthic compensation measures, and so is not relevant to the Morecambe Generation project. However, the DESNZ interim guidance also provides advice to developers who are developing their own avian compensation packages on how to ensure that their consent documents include the option to switch to sourcing their avian compensation through the Marine Recovery Fund (MRF) when it is in place. Applicants wishing to use predator reduction	Noted, the Applicant has responded to the Written Ministerial Statement of 29 January 2025 and associated guidance documents as part of their Deadline 4 Hearing action points response (REP4-061).

Ref	Question to:	Question	NE response	Applicant response
		• the Defra Policy Paper 'Reducing Marine Noise' • the JNCC 'Guidelines for minimising the risk of injury to marine mammals from unexploded ordnance (UXO) clearance in the marine environment'. insofar as they may affect the consideration of the Proposed Development. Could NE and MMO respond both generally and with particular reference to: • Unexploded Ordnance • Permanent Threshold Shift • Offshore wind piling noise limit	(which includes exclusion fencing) as a compensation measure ahead of the MRF being operational will need to deliver the measure themselves, as the Applicant is proposing. Nevertheless, the Applicant may also wish to include a provision allowing for a contribution to be made into the MRF in substitution for delivering the predator control compensation measure themselves, should the MRF have relevant measures available at that time. At this time, no measures for red-throated diver compensation form part of the library, although a provision for an MRF contribution for this species would also be prudent, alongside the project-specific measures proposed. Defra have recently published their Marine Noise package, which provides a suite of new and updated policy and guidance relating to the reduction and mitigation of underwater sound. This package includes the following documents: ▪ Marine Noise Policy paper, which can be found here - Reducing marine noise - GOV.UK. ▪ An updated Unexploded Ordnance (UXO) Joint Position Statement, which can be found here - Marine environment: unexploded ordnance	

Ref	Question to:	Question	NE response	Applicant response
			clearance Joint Position Statement - GOV.UK ▪ UXO clearance supporting guidance providing more detail for Supporting minimising environmental impacts from unexploded ordnance clearance - GOV.UK Alongside these documents, JNCC have also published new mitigation guidelines for UXO clearance, which can be found here - JNCC guidelines for minimising the risk of injury to marine mammals from unexploded ordnance (UXO) clearance in the marine environment | JNCC Resource Hub, and a joint statement from science and nature conservation advisors (Cefas, JNCC and NE) on the use of noise reduction methods when piling, which can be found here - JNCC, Natural England and Cefas position on the use of quieter piling methods and noise abatement systems when installing offshore wind turbine foundations | JNCC Resource Hub. The statement is supported by a Cefas evidence review of noise reduction methods, which can be viewed here	

Ref	Question to:	Question	NE response	Applicant response
			- Evidence on the efficacy of underwater noise abatement. Together, these documents set out the expectation that from January 2025., ***'all offshore wind pile driving activity across all English waters will be required to demonstrate that they have utilised best endeavours to deliver noise reductions through the use of primary and/or secondary noise reduction methods in the first instance'*** *and that* low-order UXO clearance should now be the default clearance method, with high-order detonations restricted to extraordinary circumstances. They also provide updated advice regarding mitigation of UXO clearance activities. Natural England advises that the Applicant should review the content of these documents and ensure their assessment and mitigation measures are aligned. Natural England will provide further, more detailed advice in due course as required. • *Offshore wind piling noise limit.* As part of the work Defra is undertaking with regard to reducing underwater noise, a 12-month study into the feasibility ad achievability of implementing a decibel limit for offshore piling has been undertaken.	

Ref	Question to:	Question	NE response	Applicant response
			The final part of this work designed a pilot programme to test the proposed decibel limit in real world conditions as part of commercial projects and two OWF projects in the southern North Sea will be taking part in the pilot programme in 2025. The pilot programme will run until 2028 and Defra are in talks with other projects to take part beyond 2025. Alongside the pilot programme, Defra will be undertaking a public consultation on the proposed limits, which Natural England understand Defra plan to conduct in Autumn 2025.	
R17.1.6.	NE	**Unexploded Ordnance Assessment** In NE's Risk and Issues log (REP3-093) at reference RE_E11 the UXO assessment remains outstanding. The Applicant indicates that the UXO clearance will be dealt with outside the DCO process. Consequently, NE is requested to give its position as to whether at this stage sufficient information has been provided in light of the recent Guidance (see R17.1.1).	Natural England's point at E11 is in relation to benthic and marine process impacts from the detonation of UXO, rather than underwater noise impacts for which the new guidance relates. Therefore, our advice within our Risks and Issues log at Deadline 3 remains unchanged.	The Applicant notes this response. Please note the Applicant has responded to Ref. E11 in The Applicant's Comments on Natural England's Risk and Actions Log at Deadline 4 (Document Reference 9.58) submitted at Deadline 5.
R17.1.7	NE MMO	**Thresholds for the onset of behavioural responses**	Natural England is satisfied with the Applicant's view that the assessment is sufficiently precautionary and considers	The Applicant welcomes this response.

Ref	Question to:	Question	NE response	Applicant response
		NE's Risk and Issues log (REP3-093) in D40 notes that the dose-response curve approach has not been used to determine the number of common dolphin impacted at White Cross. This is contrary to what is stated in Paragraph 11.760. The approach used (TTS) is not sufficiently precautionary for a disturbance impact and is not consistent with how the other projects in the area have been assessed. NE and the MMO are requested to provide further information in light of the Applicant's view that the assessment is sufficiently precautionary.	it appropriate that the Applicant can only use the information publicly available for other plans and projects when undertaking their in-combination assessment.	
R17.1.9.	NE	**Effects on Red Throated Diver** Please set out an explanation for the 10km buffer from the edge of the original Liverpool Bay SPA boundary for the effects on Red Throated Diver, and explain why any lesser distanced buffer would not be acceptable given that Red Throated Divers have been noted within 10km of existing windfarms.	Our position on red-throated diver disturbance impacts is set out in full in the Joint SNCB Interim Advice on the Treatment of Displacement for Red-Throated Diver, available here: Joint SNCB Interim Advice On The Treatment Of Displacement For Red-Throated Diver (2022) To summarise, there is evidence for red-throated divers avoiding a large area around existing offshore wind farms, with effects out to 20km from arrays reported. While the proportion of divers displaced within the OWF array itself may be close to 100%, the	The Applicant notes Natural England's (NE's) position on this matter and has provided further information to support the Applicant's position at Deadline 4 (REP4-054). This additional information supplements the Offshore Ornithology Technical Note 3 (Red Throated Diver at Liverpool Bay Special Protection Area (SPA) Update Assessment) submitted at Deadline 1 (REP1-082). Notwithstanding this position, the Applicant has continued to

Ref	Question to:	Question	NE response	Applicant response
			displacement rate is not 100% throughout the distance over which the effect occurs. Instead there is considered to be a gradation whereby the strength of the displacement effect gradually reduces with increased distance from the wind farm array. The distance over which a displacement effect has been detected varies within the scientific literature and the drivers for this variation are currently unclear. A buffer of 10km has been agreed by the SNCBs as a pragmatic distance to consider when OWFs are within or in close proximity to SPAs with red-throated diver as a designated feature. It is not expected that all red-throated divers will be displaced within 10km of an OWF but we consider that this is a distance over which it is likely that a significant displacement impact could occur. As such, areas within 10km of the Morecambe array are predicted to experience a deterioration of conditions for red-throated diver within the SPA. reducing the availability of supporting habitat within the site. This will contravene the high-level conservation objective to maintain or restore the distribution of qualifying features within the site, and the SPA's	engage with NE on this matter and provided a without prejudice compensation case (REP3-064). An updated without prejudice compensation case has been provided at Deadline 5 (Without Prejudice Compensatory Measures for Red Throated Diver_Rev 02 Clean).

Ref	Question to:	Question	NE response	Applicant response
			conservation advice attribute targets for 'Non-breeding population: distribution' (*'Restore the distribution of the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting feature distribution'*) and 'Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season' (*'Restore the extent, distribution and availability of suitable habitat which supports the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting the extent and quality (including water quality'*).	
R17.1.10	NE	**Without Prejudice Red Throated Diver Compensation** Please can both NE give its views on the efficacy of the proposed Without Prejudice Red Throated Diver Compensation proposals (REP3-065), and in particular whether they would provide sufficient compensation for the asserted effects on this species. The Examining Authority understands that NE has been provided with an unredacted version of this document by the Applicant. However, should it	See Natural England's Deadline 4 comments on the Applicant's submission for our advice on the proposals. However, we wish to emphasise that the initial steps of mitigation hierarchy should be applied in advance of compensation being sought, and thus far we do not consider the Applicant has exhausted the potential to avoid or reduce impacts to the Liverpool Bay SPA, and feel that there are potential less damaging alternatives that warrant further exploration.	The Applicant notes this response. The Applicant has addressed the corresponding question to (ExQ2 2HRA3 within The Applicant's Response to ExAs Written Questions 2 (Document Reference 9.60). A further response is also provided in Comment ID REP4-066-01 in **Table 2.7** below).

Ref	Question to:	Question	NE response	Applicant response
		require a copy, please contact the Case Team who will provide a copy.		
R17.1.16.	MMO NE	**Deemed Marine Licence** In condition 9(1)(c) there is a reference to a four month prior approval period. The MMO and NE are asked to justify why they each need a six month period. This needs to be fully justified, setting out the MMOs and NE's internal procedures involved.	Based on recent experiences of pre-construction DCO/dML condition discharge, Natural England is advising all OWF NSIPs currently in examination with '4 months prior to construction' included within DCO/dMLs for condition discharge, that this timeframe is no longer sufficient. The necessity for the increased consultation time to 6 months is to avoid delays to the start of construction and is mainly due to; a) the quantity of pre-construction condition discharge consultations we are now receiving per project (compared with OWF NSIPs consented 10 years ago), and b) the potential requirement for multiple consultations in relation to each marine licence condition. It is Natural England's view that the additional rounds of consultations have become common place due to the complexity of the issues included within the licence discharge process and in many cases the necessity to address unresolved issues from consent, before the discharge of the condition can progress.	The Applicant has discussed timescales with the Marine Management Organisation (MMO) and NE and updated the draft Development Consent Order (DCO) in line with this at Deadline 5 (Draft Development Consent Order_Rev 05 Clean).

Table 2.7 The Applicant's response to NE's Deadline 4 submission (REP4-066)

ID	NE comment	Applicant response
Appendix B9: Natural England's comments on Offshore Ornithology		
Red-throated diver		
REP4-066-01	*1.1 Summary* **Application of the Mitigation Hierarchy and Alternative Solutions** The Applicant has presented proposed compensation measures for red-throated diver, as a without-prejudice derogations case for potential impacts on Liverpool Bay SPA. However, at this stage, Natural England does not consider that the Applicant has fully explored less damaging alternative solutions that would reduce the impact on the site. The Applicant has ruled out the possibility of accommodating a 10km buffer between the pre-2017 boundary of the SPA and the array footprint, however, we advise that, in line with the mitigation hierarchy any additional buffer distance that the Applicant can feasibly accommodate to reduce the impact without significantly compromising energy production should be considered as a relevant less damaging alternative solution. Although we consider a 10km buffer to be the only way to rule out any potential impact on the site altogether, it is possible that an alternative design could reduce the impact to a level that does not result in an Adverse Effect on Integrity (AEoI) due to the Project alone, and where the contribution would not be considered sufficient to result in an in-combination adverse effect. Further, we highlight that the red-line boundary encloses an area of 87km^2, whereas the Area for Lease is 125km^2 in size. The Applicant states that the reduction in the western area was following stakeholder feedback from other industries. However, it is unclear whether in doing so, the Applicant has inadvertently excluded potential turbine positions that could be achieved without impacting those industries. If this is the case, utilising these might in turn allow a	The western area Natural England are suggesting that the Applicant consider as an alternative is not within the Order Limits and, as such, is no longer a viable alternative. The decision to remove this western area was taken a long time previously in the project development life cycle, based on feedback received during statutory consultation. Natural England did not, at that point, raise any issue of the potential of a competing reduction on the eastern side of the site at statutory consultation. Even if there were not good reasons why the western area was unsuitable (which there are – summarised below), it is no longer possible or viable to return to this much earlier stage of Project development and still achieve the Project's objectives (which are linked to the urgency of action needed to achieve Net Zero). This is clearly not a viable suggestion or a viable alternative. The Applicant points to National Policy Statement (NPS) EN-1 (para 4.3.23) which states that viable alternatives should be considered where they are available in the same timescales as the proposed development: "*The Secretary of State should*

ID	NE comment	Applicant response
	greater buffer distance between the project and the SPA to be achieved. Again, this could constitute a less damaging alternative solution.	*be guided in considering alternative proposals by whether there is a realistic prospect of the alternative delivering the same infrastructure capacity (including energy security, climate change, and other environmental benefits) in the same timescale as the proposed development*." NPS EN-1 (para 4.2.21) places further emphasis in an Habitats Regulations Assessment (HRA)-specific context on alternative solutions meeting project objectives "*Further, the existence of another way of developing the proposed plan or project which results in a significantly lower generation capacity is unlikely to meet the objectives and therefore be treated as an alternative solution*." The ExA has summarised the evidence presented by the Applicant on Red Throated Diver (RTD) distribution in the area of Liverpool Bay SPA potentially impacted by the Project in ExQ2 2HRA3. The Applicant maintains that the potential impacts of the Project would be below the threshold of Adverse Effect on Integrity for this feature. Furthermore, the Applicant again highlights the conclusions of the Plan Level HRA, presented into examination at Deadline 3 [REP3-078]. The Secretary of State did not consider that a 10km buffer from the original Liverpool Bay SPA was required when the boundary of the Project's Plan area was

ID	NE comment	Applicant response
		approved (see also the Applicant's Response to ExQ1 reference 1HRA2 in REP3-068). The Applicant was therefore given a clear direction from the Secretary of State that the entirety of the option site, inclusive of the eastern area, was available to take forward for design and boundary refinement. Relatedly, the Applicant considers that there is no justification for the Secretary of State to reach a different conclusion on AEoI on RTD at the Project scale, as the Project boundary relative to the SPA is unchanged from that assessed for the Plan Level HRA and there is no new evidence in respect of the abundance and distribution of red-throated divers within the SPA. The Applicant has set out in further detail the reasons why a reduction at the eastern boundary would not be a viable alternative in its Response to ExQ2 2HRA6 (Document Reference 9.60). The Applicant considered various factors when determining the reduction in the site western boundary. As set out in Environmental Statement (ES) Chapter 4 Site Selection and Assessment of Alternatives (APP-041), the windfarm site refinement was undertaken following analysis of geophysical survey data, environmental analysis, consultation feedback and layout design development. Key drivers for the change to the western boundary (alongside power density considerations) included facilitating

ID	NE comment	Applicant response
		an increase in searoom to the southwest of the site enabling a reduction of risk of collision between navigating vessels to the west of the site (a key concern for shipping and navigation stakeholders) and a minimisation of ferry route deviations. The refinement of the western boundary also reduced interaction with surrounding gas field operations and minimised fragmentation of the site due to required platform buffers and navigation corridors (noting that Calder platform now sits outside the windfarm site). Added benefits of the boundary change include reduced incidence of sandwaves and mega ripples offering potential benefits of reduced seabed preparation, minimisation of cable lengths and reduced underwater noise impacts to sensitive spawning grounds to the west of the site. The constraints imposed by these various factors together mean the opportunity for siting WTGs within the western area would not be achievable (notwithstanding the point made above that this area is no longer within the Order limits and so no longer a viable alternative) while maintaining an efficient layout design and enabling the reduction of impacts on a range of receptors and stakeholders that the site refinement enabled.

ID	NE comment	Applicant response
REP4-066-02	**Compensatory Measures** The Applicant's proposal is focussed on providing nesting rafts on small lochs in Scotland to improve productivity, along with potential habitat management. We consider that in broad terms the measure is well evidenced and can reasonably be expected to deliver benefits for this species and, subject to the locations being selected, the National Site Network (NSN) for red-throated divers. Nesting rafts and habitat management are technically feasible, however, site selection is a critical factor to the success of this measure. We welcome that the Applicant has progressed a shortlisting process and has secured initial letters of support from some landowners – although it is not clear from the report whether the waterbodies for which support has been secured are the most appropriate for the proposed measures. Whilst we acknowledge that this is an ongoing process, we consider that further information on the selected locations and the rationale for these is much needed. This should include, among other elements, any risk of unintended consequences (e.g. drawing divers out of SPAs into areas where they are not protected) and predation risk, particularly regarding American mink in mainland locations. There is an acknowledged mismatch between the expected benefits (increased productivity) and the impact (habitat loss/degradation in a wintering area), which makes it difficult to consider what is an appropriate scale for the measure. The Applicant has proposed installation of 20 nesting rafts, with a prediction that this will lead to five to seven additional juvenile birds fledging each year. We highlight that, based on the available evidence concerning survival rates for this species, approximately two of those birds may be expected to reach maturity and recruit into the breeding population annually. We are broadly content that the scale of measures proposed is appropriate for the Project's impacts, subject to suitable locations being identified and secured. The Applicant has submitted a brief outline structure for the compensation implementation and monitoring plan. Whilst the structure is appropriate, we are concerned that it contains no detailed content. The plan should be populated as	The Applicant welcomes confirmation from NE that the provision of nesting rafts is expected to deliver benefits RTD within the National Site Network (NSN). A further update to the without prejudice derogation case and compensation measures is provided at Deadline 5 (Rev 02 of the RTD Derogation Case at Deadline 5 (Without Prejudice Compensatory Measures for Red Throated Diver_Rev 02 Clean) to highlight further progress made in developing the measure.

ID	NE comment	Applicant response
	far as is possible before the close of the Examination. As it is only an outline at this stage, we will provide comment on this when it has been developed further.	
Lesser black-backed gull		
REP4-066-03	*2.1 Summary* The Applicant has updated the without prejudice derogation case document for lesser black-backed gull with revised impact figures based on the Offshore Ornithology Technical Note 2 (HRA), submitted at Deadline 1. We welcome the updated figures but highlight that it is our position that for Morecambe Bay and Duddon Estuary SPA they are likely to be an underestimate of the true impact that could be expected by the time the Project is operational, due to the status of the colony at the time of baseline characterisation surveys compared to its current positive population and productivity trends, and therefore potential future trajectory. The Applicant has not managed to replicate the Hornsea 3 method advised for calculating compensation requirements. More generally, identifying a robust and proportionate approach to quantifying the compensation requirements for offshore windfarms impacting seabird SPAs has proved challenging. On behalf of Collaboration on Offshore Wind Strategic Compensation (COWSC), Natural England has commissioned the British Trust for Ornithology (BTO) to carry out an independent review both existing and alternative approaches to compensation calculations, principally for black-legged kittiwake. We will endeavour to keep the Examining Authority and The Applicant updated on timescales for delivery of this project and whether it has any implications for the Applicant's compensation proposals. The Applicant has updated the in-principle monitoring plan to suggest that monitoring to inform understanding of collision risk is not required. We disagree with this, and highlight that, as outlined above, there is uncertainty over the true level of the Project's collision impacts on key protected species that should be	NE's comments are noted. While the Applicant recognises the limitations to available methods to estimate the compensation requirement, it is reiterated that the proposed measures will over-compensate any predicted loss by a substantial margin, and therefore any re-estimation would make no difference to the delivered compensation. The Applicant also highlights that, while it has not been possible to apply the Hornsea 3 approach (and noting that NE, during the consultation meeting on 13 January 2025, acknowledged that the full details of this approach were unclear/unavailable), a multiplier equivalent to this approach has been applied. The Applicant considers that this provides a generous level of compensation, which has increased from 18 to 26 nests in the updated without prejudice derogation case document (REP3-008). As above, the actual delivered level of compensation would be substantially larger than this. The Applicant does not consider that collision monitoring for the Project is justified or would generate meaningful results, noting the very small predicted lesser black-backed gull mortality arising from the Project alone. Whilst the Applicant recognises that annual

ID	NE comment	Applicant response
	addressed through monitoring efforts, and we encourage the Applicant to consider possible methods to address this. See Appendix G2.	mortality could increase if the breeding populations at the respective SPAs increase, such a change is likely to make little difference (i.e. a fraction of a bird per year) in terms of mortality at the Project site. It is doubtful that such a change could be detected by any realistic monitoring approach at a Project level. The most meaningful monitoring is likely to be achieved at the SPAs themselves, to understand the trajectory of breeding populations in response to, for example, improved predator control at these sites. While it is possible that some understanding of the external pressures on the breeding populations could be obtained from this monitoring, it very unlikely that the effects of windfarms could be untangled from the other pressures. As set out in the Applicant's submissions (including the Report to Inform Appropriate Assessment (RIAA); REP4-009), it is likely that other pressures (such as closure of landfill sites and effects of predation) will be having a much more substantial effect. The Applicant would expect that such monitoring would be delivered as part of the existing management of the SPAs, and does not consider that it should be the responsibility of the Project to deliver this, taking into account the many other pressures on the population. However, the Applicant would be happy to discuss the possibility of providing a contribution towards

ID	NE comment	Applicant response
		a wider monitoring programme (i.e. to be led by Natural England or others).
Table 1: Natural England's Advice On: Habitats Regulations Assessment Without Prejudice Derogation Case – Red-Throated Diver at Liverpool Bay / Bar Lerpwl SPA		
REP4-066-04	**Key concern and/or update** When considering an alternative scale or alternative design for the Project as a potential way to avoid the impact on Liverpool Bay SPA, the Applicant notes our previous advice that to avoid the impact on red-throated diver distribution they would need to ensure that no turbines are built within 10km of the original SPA boundary and has ruled this out as an alternative solution. We do not consider that this represents a full exploration of the potential to reduce the impact on the SPA through an alternative array design. **NE's advice to resolve issue** We highlight that according to the mitigation hierarchy and in line with the alternative solutions test, if avoiding the impact is not possible, every effort should still be made to mitigate the impact as far as possible, which in this case would involve ensuring that turbines are built as far away from the original SPA boundary as is feasible while maintaining the viability of the Project. We advise that if an alternative design which increases the buffer distance between the turbine array and the pre-2017 SPA boundary is feasible without significantly reducing energy generation, it would constitute an alternative solution and should be presented as a potential mitigation measure to reduce the Project's impact on the SPA. Although we consider a 10km buffer to be the only way to rule out any potential impact on the site altogether, it is possible that an alternative design could reduce the impact to a level that does not result in Adverse Effect on Integrity (AEOI) due to the Project alone and where the contribution would not be considered sufficient to result in an in-combination adverse effect.	See the Applicant's response to ID REP4-066-01 above and in Response to ExQ2 2HRA6 (Document Reference 9.60).
REP4-066-05	**Key concern and/or update** Natural England broadly agrees with the conclusions of the screening process for potential compensation measures. Regarding reducing disturbance from existing	The Applicant welcomes confirmation from NE that provision of nesting rafts would provide an effective compensation measure

ID	NE comment	Applicant response
	anthropogenic activity (vessels and helicopters), we do note that in the technical note 3 submitted at Deadline 1, the Applicant provided analysis to suggest that the red-throated diver feature of Liverpool Bay SPA is currently impacted by disturbance from high levels of traffic in the area, particularly helicopter traffic. We therefore consider that there could be potential ecological benefit in reducing disturbance from this source, particularly given the precedent set by EA1N and EA2 OWF projects. However, we acknowledge that the difficulties in securing this measure may mean that it is not feasible for the Project to deliver, and that the Applicant has screened in 'Contributed to a strategic fund', which is the most likely delivery route for reducing disturbance/displacement effects. **NE's advice to resolve issue** We consider that the provision of nesting rafts and/or habitat management to improve the breeding success of red-throated diver could be an effective measure to compensate for the Project's impacts on the non-breeding red-throated diver feature of the Liverpool Bay SPA, while noting the mismatch between the nature and location of the impact and the proposed measure. With that in mind, we do consider a strategic contribution might be more appropriate.	for red-throated diver. The Applicant also reconfirms that it would seek to deliver compensation through a contribution to a strategic fund, should such a measure become available.
	Key concern and/or update We welcome the Applicant's consideration of strategic compensation as an alternative measure. We consider that this would be a desirable solution if deliverable within the timescale of the Project. **NE's advice to resolve issue** We support the principle of the Applicant making a contribution to a strategic fund, noting that as the Library of Strategic Compensation Measures (LoSCM) expands, measures relevant to red-throated diver may become available in due course. We recommend that the Applicant monitors the progress of the COWSC (Collaboration on Offshore Wind Strategic Compensation) initiative as regards suitable options, and if measures are emerging, consider what an appropriate contribution might entail.	The Applicant welcomes NE's comment on this matter and reconfirms that it would seek to deliver compensation through a contribution to a strategic fund, should such a measure become available.

ID	NE comment	Applicant response
REP4-066-06	**Key concern and/or update** Given the focus to deliver benefit to the wider NSN we question whether it may be advantageous to seek to collaborate on delivery of sites with North Falls, rather than seeking to avoid overlap with their proposals. We understand that the areas in which the Applicant would seek to deliver the proposed compensation were screened out by North Falls due to having lower potential for delivery of the measure. The greatest benefit to the NSN may therefore come from scaling up measures in the regions screened in by North Falls rather than seeking other, potentially less desirable sites. We acknowledge, however, that the Applicant has already carried out shortlisting of potential sites and secured letters of support from some landowners, and we welcome this progress. **NE's advice to resolve issue** We advise that the Applicant considers whether the proposed nest rafts and habitat management compensation measure could be more effectively delivered through collaboration with North Falls.	The Applicant contacted the North Falls Applicant to discuss the potential for collaboration on RTD compensation prior to submitting the 'without prejudice' Derogation Case requested by the ExA into examination at Deadline 3 and again prior to Deadline 5. The Applicants both express a willingness to co-ordinate and collaborate following our mutual DCO awards, however at this stage both are working to develop independent RTD compensation measures securable on a Project alone basis. The Applicant maintains that the locations being develop for the Project are suitable to be able to deliver the compensation measures. Further, consultation with red-throated diver experts by the Applicant confirms that it is considered most likely that birds present within Liverpool Bay breed on the west coast of Scotland (including the Hebrides), Greenland and the east coast of Canada. Compensation measures focused on the west coast of Scotland RTD breeding population would therefore likely demonstrate more connectivity with the impacted Liverpool Bay SPA population than would delivery of a similar measure for the Shetland Island RTDs, which would likely demonstrate more connectivity with Southern North Sea SPAs.
REP4-066-07	**Key concern and/or update** We recognise that given the uncertain breeding origins of the birds present in Liverpool Bay, there would not necessarily be any direct benefit to the impacted	The Applicant acknowledges, as set out in the RTD Derogation Case (REP3-064) that the proposed compensation is not

ID	NE comment	Applicant response
	population from the proposed measure of providing nesting rafts and/or habitat management. Furthermore, the measure would not address the disturbance and displacement (effectively felt as habitat loss) impacts of the project. Nevertheless, there would be connectivity with the United Kingdom National Site Network (UK NSN) through potential recruitment into Scottish SPAs designated for breeding RTD, and possibly also to the Scottish and English SPAs designated for non-breeding red-throated divers. We highlight that it is not clear that direct connectivity with the impacted site would necessarily be advantageous in this case, as delivering additional birds into a site adversely affected by disturbance impacts may be less beneficial to the UK NSN as a whole than if they were to winter in a less impacted site. **NE's advice to resolve issue** We would welcome further consideration from the Applicant regarding how benefits to the UK NSN might be best delivered.	necessarily intended to deliver benefit directly to Liverpool Bay SPA. Instead, as NE indicates, the measures are designed to benefit the wider NSN for this species. The Applicant considers that the provision of nesting rafts, to increase RTD productivity, is the most appropriate means to deliver such as measure, as it has a high certainty of success. As above, the Applicant would also welcome the ability to contribute to a strategic fund, should this become available. The Applicant has not been able to identify other measures that are likely to be as effective as those proposed, and therefore considers the proposals as set out in REP3-064 to be the best available to deliver benefits to the NSN. Further updates to the proposed compensation is provided in Rev 02 of the RTD Derogation Case at Deadline 5 (Without Prejudice Compensatory Measures for Red Throated Diver_Rev 02 Clean).
REP4-066-08	**Key concern and/or update** The Applicant has provided adequate evidence that the breeding success of red-throated divers is constrained and that the provision of nesting rafts and/or habitat management are feasible and have the potential to measurably improve productivity at sites where the measures are implemented. Nesting rafts have been shown to increase productivity at suitable sites and has a long history of successful implementation, proving it is technically feasible. Habitat management is feasible should baseline monitoring identify there is a need at suitable sites. We highlight that regulation of water levels (on peat) may prove much more challenging than reducing predation/anthropogenic disturbance or managing the height of vegetation.	The Applicant notes NE's comments.

ID	NE comment	Applicant response
	NE's advice to resolve issue For information.	
REP4-066-09	**Key concern and/or update** Although in most regards the Applicant's proposed measure is similar to that of North Falls, we advise that the different proposed location of the measures introduces some alternative considerations. The Applicant has noted the possibility of American mink predation. American mink are present across large areas of mainland Scotland and some of the islands but are absent from Shetland. The Applicant will need to carefully consider whether the presence of American mink in some areas may significantly compromise the measure, and if there is a residual risk in some locations, give consideration to potential adaptive management solutions if mink predation proves to be a threat to the success of the measure. **NE's advice to resolve issue** We advise that local stakeholders, including NatureScot, are consulted regarding sites where mink predation may be an issue and that this informs site selection and/or potential adaptive management solutions.	The Applicant notes NE's comments and confirms that consideration of mink predation would be incorporated into compensation and adaptive management proposals, as appropriate.
REP4-066-10	**Key concern and/or update** Natural England is satisfied that suitably evidence-based criteria for identification of potential compensation sites have been set out by the Applicant. We welcome the use of local experts in the site identification process. **NE's advice to resolve issue** No further action needed.	The Applicant welcomes this response.
REP4-066-11	**Key concern and/or update** Natural England agrees with the Applicant that there is no robust way to scale the level of compensation to be delivered due to the mismatch between the expected benefits (increased productivity) and the impact (habitat loss/degradation). We	The Applicant welcomes confirmation that the proposed level of compensation is appropriate for the Project. Further consideration will be given to the potential benefits to the NSN, although the Applicant

ID	NE comment	Applicant response
	note that Applicant's prediction that the provision of 20 nesting rafts could lead to an additional five to seven birds being fledged each year. However, we would highlight that the success of a compensation measure is generally considered in terms of the number of breeding adults the measure may introduce into the population, rather than fledged juveniles. Survival rates of RTD are not well evidenced but are thought to be relatively low. Horswill & Robinson (2015) report (with low confidence) survival rates of 0.6 for juveniles (age 0-1) and 0.62 for immatures (age 1-2). This suggests that the measure might be expected to deliver approximately 2 additional adult red-throated divers per year into the population. Nonetheless, we are broadly content that the scale of the measures proposed is appropriate for the Project, subject to suitable locations being identified. **NE's advice to resolve issue** We would welcome further exploration of the benefits to the breeding population from the provision of an additional two adult divers per year.	highlights that it considers it reasonable to consider the number of juveniles entering the population in respect of benefits to the non-breeding population within the NSN.
REP4-066-12	**Key concern and/or update** We welcome that the compensation would be implemented and maintained for the lifetime of the Project, and that the Applicant has indicated that adaptive management would be implemented if the measure was found not to be delivering against its objectives. **NE's advice to resolve issue** The implementation plan should set out how the need for adaptive management will be identified and the sorts of measures that might be required. We look forward to reviewing a populated version of the implementation plan in due course.	An update to the RTD derogation case and compensation proposals is being submitted by the Applicant at Deadline 5 (Without Prejudice Compensatory Measures for Red Throated Diver_Rev 02 Clean). Updates to the outline Compensation Implementation and Monitoring Plan (CIMP) will be provided at a later date, noting that it is expected that the detailed CIMP would only be developed if it was confirmed by the Secretary of State (SoS) that RTD compensation was required. This would include further detail on potential adaptive management measures, although as, by their nature, the need for such measures is not known, the level of such detail would be limited.

ID	NE comment	Applicant response
REP4-066-13	**Key concern and/or update** We acknowledge the inherent risks that multiple monitoring visits might represent and recognise that anthropogenic disturbance has been reported as a factor in reduced breeding success, though Nummi and others (2013) found that red-throated diver bred successfully on nesting rafts despite anthropogenic disturbance. Nevertheless, we would advocate investigation into the feasibility of using established or emerging technologies for this purpose, such as thermal drones, trail cameras/temperature data loggers (Hulka, 2010) or remote camera systems to ensure that the potential improvements to red-throated diver productivity by adopting nesting rafts are adequately quantified in comparison with natural sites and/or a baseline. We note that where site visits are required, these would be conducted by appropriately licensed individuals. Success of the measures relies heavily on the Applicant's ability to quantify existing productivity as this measure relies on improvements to existing productivity, hence effective monitoring is an essential part of the compensation package. **NE's advice to resolve issue** The implementation plan should set out an in-principle monitoring methodology that can then be fully detailed during steering group discussions.	The Applicant notes NE's comments and confirms that the risk of disturbance will be carefully considered as part of monitoring proposals. The Applicant would consult with experts on this matter when developing monitoring proposals, and these would be incorporated into the CIMP in consultation with the steering group, should the need for compensation be confirmed by the SoS.
REP4-066-14	**Key concern and/or update** We note discussion of the need for retrofitting roofs to nesting rafts should avian predation be identified as a limiting factor in breeding success. We understand that the deployment of camouflage nets over wire mesh has met with some success elsewhere for great northern diver (DeSorbo and others, 2008) but consider that references to 'roofs' are somewhat misleading. Rafts will need to be placed in sheltered locations to avoid a retrofitted structure acting as a sail in high winds. We would encourage raft design to allow for the development of natural vegetation (e.g. Carex spp. at <30cm). **NE's advice to resolve issue**	The Applicant welcomes NE's advice on this matter. As above, adaptive management would be addressed in consultation with relevant experts (including the steering group) to ensure appropriate measures were implemented if required. It is noted that it is proposed that rafts would be turfed with vegetation from around the loch, which should enable natural vegetation to establish, as NE suggests.

ID	NE comment	Applicant response
	The implementation plan should in due course clarify what this adaptive management would entail.	
REP4-066-15	**Key concern and/or update** We note the Applicant's assessment of the potential effects of the proposed compensation measures. We advise that, as the proposed measure involves installing nesting rafts near SPAs designated for breeding divers, there may be some potential for the rafts to attract divers that would otherwise breed within an SPA. Even if those birds did show improved breeding success, this would nonetheless be an undesirable outcome for the NSN as fewer birds would be breeding within protected sites. **NE's advice to resolve issue** It is not clear what distance from breeding RTD SPAs the Applicant has used to prevent the risk of unintended consequences, such as attracting divers out of protected locations. This should be clarified and an evidence-based rationale provided. We advise that the relevant SNCB (NatureScot) should be consulted regarding potential impacts on Scottish protected sites.	The Applicant notes this comment. The proposed measures will seek to increase productivity of existing breeding red-throated divers where possible, and it is not expected that locations in close proximity to existing red-throated diver SPAs will be proposed. However, where rafts at new breeding locations are provided, it seems unlikely that this would draw birds from existing SPA populations (where conditions for this species are likely to be optimal). It would also be the case that the increased population arising from the compensation would provide additional birds into the SPA breeding populations.
Table 2: Natural England's Detailed Advice On: Lesser black-backed gull Habitats Regulations Assessment Without Prejudice Derogation Case		
REP4-066-16	**Key concern and/or update** Natural England notes that the Applicant has updated this document with the impact figures for lesser-black backed gull at Morecambe Bay and Duddon Estuary SPA from the Offshore Ornithology Technical Note 2 (HRA). We welcome this as being more representative of the predicted impacts as based on the baseline survey data. **NE's advice to resolve issue** We highlight, as per our comments at Deadline 3 (3REP3_090), that based on the ecology of this species and the trajectory of the SPA population, the Applicant's impact figures are likely to be an underestimate of the impacts expected by the	The Applicant notes this response, but it is reiterated that the proposed measures will over-compensate any predicted loss by a substantial margin, and therefore any re-estimation would make no difference to the delivered compensation.

ID	NE comment	Applicant response
	time the Project is operational. This should be taken into account when calculating compensation requirements and monitoring plans.	
REP4-066-17	**Key concern and/or update** We note that the Applicant has updated this document with the impact figures for lesser-black backed gull at Ribble and Alt Estuaries SPA from the Offshore Ornithology Technical Note 2 (HRA). We welcome this as being more representative of the predicted impacts as based on the baseline survey data. **NE's advice to resolve issue** No further action needed.	The Applicant welcomes this response.
REP4-066-18	**Key concern and/or update** We note that the Applicant has been unable to replicate the Hornsea 3 method for calculating compensation requirements. Identifying a robust and proportionate approach to quantifying the compensation requirements for offshore windfarms impacting seabird SPAs has proved challenging. Multiple methods have been used but there is no clear consensus on the most appropriate method to use. On behalf of Collaboration on Offshore Wind Strategic Compensation (COWSC), Natural England has commissioned the British Trust for Ornithology (BTO) to carry out an independent review both existing and alternative approaches to compensation calculations, to help resolve the issue and establish a level playing field for projects. If possible, the BTO will provide recommendations to COWSC regarding the most appropriate method to use for black-legged kittiwake. The BTO review will also consider whether the recommendations are relevant to other seabird species. A final report to COWSC is scheduled for March 2025. Natural England will endeavour to keep current Examinations and prospective applicants updated on timescales. **NE's advice to resolve issue**	The Applicant welcomes this response.

<table>
<tr><th>ID</th><th>NE comment</th><th>Applicant response</th></tr>
<tr><td></td><td>Natural England will endeavour to keep the Examining Authority and The Applicant updated on timescales for delivery of this project and whether it has any implications for the Applicant’s compensation proposals.</td><td></td></tr>
<tr><td>REP4-066-19</td><td>Key concern and/or update
We welcome that the Applicant has incorporated consideration of the potential impacts of the compensation measure into this document and we are satisfied with the conclusions.

NE’s advice to resolve issue
No further action needed.</td><td>The Applicant welcomes this response.</td></tr>
<tr><td>REP4-066-20</td><td>3. Minor comments
Table 3: Natural England’s advice on: Offshore ornithology technical notes<table><tr><th>Document reviewed</th><th>Update made</th><th>Issue resolved?</th></tr><tr><td>[REP3_057] 9.22.1 Offshore Ornithology Technical Note 1 (EIA)</td><td>We note the updated displacement assessment figures for Manx Shearwater and are satisfied that the assessment conclusions are unchanged.</td><td>Yes</td></tr><tr><td>[REP3_057] 9.22.1 Offshore Ornithology Technical Note 1 (EIA) section 5.1</td><td>NRW is the SNCB for comment on the updated quantitative assessment of effects on Pen y Gogarth / Great Orme’s Head Site of Special Scientific Interest (SSSI), as this is a Welsh site.</td><td>n/a</td></tr><tr><td>[REP3_059] 9.23.1 Offshore Ornithology Technical Note 2 (HRA)</td><td>We note that all the updates within this document pertain to Welsh sites, and NRW is therefore the SNCB for comment.</td><td>n/a</td></tr></table></td><td>The Applicant welcomes this response regarding the updated displacement assessment figures for Manx Shearwater.</td></tr>
<tr><td colspan="3">Appendix G2 - Natural England’s comments on the Offshore in Principle Monitoring Plan Rev 02 (REP3-046)</td></tr>
<tr><td>REP4-066-21</td><td>1.2 Overarching comments
The Applicant has included the hypotheses that they will be testing for proposed monitoring, but it is still not clear how the data collected will be used to test these hypotheses, whether proposed methods will have sufficient statistical power to detect change, or how these results could be used to inform the adaptive</td><td>The Applicant notes that the In Principle Monitoring plan (IPMP) was updated at Deadline 3 (REP3-045) in response to NE comments, again noting that the monitoring plan would be finalised and approved post consent.</td></tr>
</table>

ID	NE comment	Applicant response
	monitoring approach. We recommend that development of the IPMP continues with regard to the principles outlined in our previous submission (REP2_037).	
Table 1: Natural England's Detailed Advice On: General Guiding Principles for the Proposed Monitoring		
REP4-066-22	**Key concern and/or update** NE welcomes the addition of information on decommissioning and post-decommissioning studies to the IPMP. We note however that none of the proposals are specific to monitoring the effects of decommissioning on environmental receptors. We also note the Applicant intends to delay the submission of further detail on decommissioning monitoring to the pre-construction period with the Decommissioning Programme, and any commitment to such monitoring to the post-construction period. **NE's advice to resolve issues** NE's advice remains that an outline Decommissioning Programme should be submitted to support the consenting phase. This should include an outline of monitoring that could be carried out for environmental receptors (most importantly, offshore ornithology, marine mammals and benthic) during and post-decommissioning, should it be required.	The Applicant does not consider that an outline version of a Decommissioning Plan is required to be submitted pre-consent. During the post-consent stage when more accurate details of the Project design are known, a decommissioning programme can be prepared based on those details. The Applicant would also note that Guidance for industry[1] issued by the Department for Business, Energy and Industrial Strategy. The Applicant will continue to engage with NE on this matter but the Applicant is unlikely to agree this through the Examination
REP4-066-23	**Key concern and/or update** Updates to these sections have clarified that noise monitoring and monitoring to provide distribution information on harbour porpoise and other marine mammals is now considered to be required by the Applicant. We note that the distribution monitoring will only apply to the over winter period as this proposal is tied to the monitoring for red-throated diver. However, monitoring of disturbance to marine mammals is only included as an option, if deemed necessary by SNCBs.	The Applicant notes that monitoring of marine mammal responses to impacts of the Project would be undertaken through underwater noise monitoring of the first four piles and through the Draft Marine Mammal Mitigation Plan (MMMP), which would report on marine mammal observations and responses throughout any piling operations. Reports

[1] https://assets.publishing.service.gov.uk/media/5f5b2724e90e0718e212a22d/decommisioning-offshore-renewable-energy-installations-energy-act-2004-guidance-industry__1_.pdf

ID	NE comment	Applicant response
	NE's advice to resolve issues NE advises that monitoring of marine mammal responses to impacts is necessary and should be undertaken.	would be provided to the MMO for approval as detailed in the draft MMMP. The Applicant considers that sufficient monitoring of marine mammal impacts can be undertaken with that initially proposed, however it is noted that a final In Principle Monitoring Plan is to be agreed post-consent based on detailed design parameters, providing opportunity to further discuss marine mammal monitoring as foundation design develops.
REP4-066-24	**Key concern and/or update** Natural England notes that the Applicant has stated that they consider that additional monitoring of collision impacts would not be required. As Natural England considers that the predicted impacts of the Project on the lesser black-backed gull feature of Morecambe Bay and Duddon Estuary presented by the Applicant are likely to be an underestimate of the potential impacts that could be expected to occur by the time the Project is operational, there could be value in using monitoring to determine whether this is the case. **NE's advice to resolve issues** As set out in our comments at Deadline 3 (REP3_090), the Project's baseline surveys coincided with years when the colony was just beginning to recover following years of repeated breeding failure, when numbers of breeding adults and productivity levels were still relatively low. Colony numbers and productivity have already increased since then, meaning that more birds are already likely to forage offshore during the breeding season, potentially within the Project footprint, than were recorded in the baseline surveys. As it is unknown by what amount the predicted figures may underestimate the true impact, this represents a key uncertainty which monitoring could address. We advise the Applicant to consider methods to address this uncertainty, to confirm whether it is the case that more	The Applicant does not consider that collision monitoring for the Project is justified or would generate meaningful results, noting the very small predicted Lesser Black-Backed Gull **(**LBBG) mortality arising from the Project alone. Whilst the Applicant recognises that annual mortality could increase if the breeding populations at the respective SPAs increase, such a change is likely to make little difference (i.e. a fraction of a bird per year) in terms of mortality at the Project site. It is doubtful that such a change could be detected at a Project level. The most meaningful monitoring is likely to be achieved at the SPAs themselves, to understand the trajectory of breeding populations in response to, for example, improved predator control at these sites. While it is possible that some understanding of the external pressures on the breeding populations could be obtained from this

ID	NE comment	Applicant response
	gulls may be found on the site during the breeding season at the time of construction/operation and whether the predicted collision impacts are accurate.	monitoring, it very unlikely that the effects of windfarms could be untangled from the other pressures. As set out in the Applicant's submissions (including the RIAA; REP4-009), it is likely that other pressures (such as closure of landfill sites and effects of predation) will be having a much more substantial effect. The Applicant would expect that such monitoring would be delivered as part of the existing management of the SPAs, and does not consider that it should be the responsibility of the Project to deliver this, taking into account the many other pressures on the population. However, the Applicant would be happy to discuss the possibility of providing a contribution towards a wider monitoring programme (i.e. to be led by Natural England or others).
REP4-066-25	**Key concern and/or update** Only post-construction monitoring is considered to be required for red-throated diver by the Applicant. **NE's advice to resolve issues** It is unlikely that any changes in abundance and distribution could be determined without both pre and post construction monitoring. NE therefore advises that pre-construction monitoring is also included as required, based on an assessment of the power of the data to detect change. We also note that pre-construction monitoring for red-throated diver presents the opportunity to gather pre-construction evidence on harbour porpoise according to the Applicant's proposal to combine these surveys. This will provide improvements	It is the Applicant's position that the existing baseline surveys for the Project provide a suitable reference against which any future change in red-throated diver abundance/distribution could be monitored. However, the Applicant is happy to discuss the requirement for additional pre-construction monitoring with Natural England to ensure that any proposals are appropriate and have sufficient power to detect any change.

ID	NE comment	Applicant response
	to the ability to detect change for harbour porpoise in the over-winter period in addition to gathering basic information on distribution at a single point in time.	

2.4 Natural Resources Wales (REP4-074)

Table 2.8 The Applicant's response to NRW's Deadline 4 submission (REP4-074)

ID	NRW comment	Applicant response
1. Marine Ornithology		
Offshore Ornithology Comments on the Applicant's submissions at Deadline 3		
REP4-074-01	**Habitats Regulations Assessment Screening Report, Revision 02 (REP3-006: clean/REP3-007: tracked)** Updates to this document have been made to ensure the appendices and screening summaries align. This does not include any amendments to address NRW (A)'s comments regarding offshore ornithology, and we therefore have no comments to make on this document. We refer to previous comments raised in our submission at Deadline 3 (REP3-094).	The Applicant notes this response.
REP4-074-02	**Habitats Regulations Assessment Without Prejudice Derogations Case, Revision 03 (REP3-008: clean/REP3-009: tracked)** NRW (A) note that this document relates to compensation measures for English lesser black-backed gull Special Protection Areas (SPAs) (Morecambe Bay & Duddon Estuaries SPA and Ribble & Alt Estuaries SPA). As these English sites are not within NRW's remit, we have not provided any comments on this document.	The Applicant notes this response.
REP4-074-03	**Offshore Ornithology Technical Note 1 (EIA), Revision 02 (REP3-056: clean/REP3-057: tracked)** **Updated Manx shearwater abundances and assessments** NRW (A) welcome the updated Manx shearwater project alone Environmental Impact Assessment (EIA) scale assessment presented by the Applicant in Section 2.2.1.4 of REP3-056. We agree with the seasonal mean peak abundances and the overall annual predicted impacts from the project alone. However, as the Environmental Statement (ES) will likely be referred to by future projects to access the abundances and predicted impacts for the Morecambe Generation Assets project for inclusion in future cumulative assessments, we advise that the Applicant includes these corrected figures and assessments in an updated version of the	An updated Chapter 12 Offshore Ornithology has been submitted alongside this document at Deadline 5 (Chapter 12 Offshore Ornithology_Rev 03 Clean).

ID	NRW comment	Applicant response
	Offshore Ornithology ES Chapter. This advice also applies to the updated gannet seasonal mean peaks and associated amended assessments as presented in PD1-010. Currently the information for these two species is contained within two separate submission documents to the ES chapter.	
REP4-074-04	NRW (A) also welcome that the contribution of the Morecambe Generation Assets project to the Manx shearwater cumulative assessment has been updated to include the revised project alone figures in Section 3.2.1.2 of REP3-056. Similarly, we recommend that an updated version of the ES Chapter, including the full cumulative assessments including gap filled historic projects, is submitted into the examination, so that all the numbers feeding into the cumulative assessments are readily and easily accessible within one place for future projects to use this information. Please also note our Deadline 3 comments (REP3-094) regarding the cumulative gap fill approaches.	
REP4-074-05	**Assessment of impacts to features of Pen y Gogarth / Great Orme's Head SSSI** **Key Comments** NRW (A) welcome that the Applicant has submitted a detailed quantitative assessment of impacts of the Morecambe Generation Assets project alone and cumulatively on the kittiwake, guillemot and razorbill features of the Pen y Gogarth / Great Orme's Head Site of Special Scientific Interest (SSSI). We advised that this should be undertaken in both our comments on the Applicant's Preliminary Environmental Information Report (PEIR), and in our Written Representation (REP1-099). We note that the Applicant did not engage with or discuss their approach for this assessment with NRW (A) prior to the submission of their assessment in Section 5 of REP3-056 into examination. As a result there are some aspects of the assessment approach where we have concerns/queries or that we would not agree with/advise are undertaken, namely: a) The approach to the calculation of non-breeding season apportionment rates to the Pen y Gogarth / Great Orme's Head SSSI (see Section 1.3.2.2.2 below)	The Applicant has presented an update to the assessment for Great Orme's Head Site of Specific Scientific Interest (SSSI) within Chapter 12 Offshore Ornithology has been submitted alongside this document at Deadline 5 (Chapter 12 Offshore Ornithology_Rev 03 Clean). The Applicant considers that this updated assessment addresses Natural Resource Wales (NRW (A)'s principal issues of concern.

ID	NRW comment	Applicant response
	b) b) NRW (A) do not agree with the use of the non-breeding season stable-age structures from Furness (2015) for age-class apportioning in the breeding season. We consider that the Applicant's use of this approach risks significantly underestimating cumulative impacts on adult breeding birds (see Section 1.3.2.3.1 below). c) c) The Applicant has included different figures for the Morecambe Generation Assets project alone in the cumulative assessments to those predicted in the project alone assessment. This appears to be related to the cumulative assessment using the non-breeding season stable age structures from Furness (2015) to apportion to adults in both the breeding and non-breeding season(s) (see Section 1.3.2.3 below). d) d) NRW (A) welcome that the cumulative assessments have included the gapfilled historic projects. However, we note that the Barrow, North Hoyle and Llŷr 1 projects have not been included. As per our advice provided in paragraph 6 of REP3-094, we recommend that these projects are also included within the cumulative assessments (see Section 1.3.2.3 below). e) e) Whilst we welcome that the Applicant has run Population Viability Analyses (PVA)'s, we note that these have been run on the predicted impacts based on the Applicant's preferred % displacement and % mortality rates only. We advise the Applicant also includes PVA outputs for predicted impacts for the project alone and cumulatively for the worst-case scenario of the NRW (A) advised range (e.g., for auks that is 70% displacement and 10% mortality) as well (see Section 1.3.2.4 below). Further information on each of these issues is set out in our detailed comments below.	
REP4-074-06	**Apportionment of impacts to the Pen y Gogarth/Great Orme's Head SSSI colony** **Breeding season apportionment of impacts** NRW (A) are content with the approach used to calculate the breeding season apportionment value for apportioning impacts to the colony in the breeding season	The Applicant welcomes this response.

ID	NRW comment	Applicant response
	(i.e., the NatureScot apportionment tool). Therefore, we are content with the calculated breeding season apportionment rates to the SSSI (10.95% for guillemot, 11.21% for razorbill and 4.93% for kittiwake) used by the Applicant in REP3-056.	
REP4-074-07	**Non-breeding season apportionment of impacts** NRW (A) agree that to estimate the non-breeding population of the Great Orme's Head SSSI predicted to be present within the relevant species-specific regional non-breeding season(s) Biologically Defined Minimum Population (BDMPS), the most appropriate colony counts to use are the SSSI counts from 2000.	The Applicant welcomes this response.
REP4-074-08	In our Written Representations (REP1-099, paragraph 29), NRW (A) advised that for apportionment of impacts to the SSSI for the non-breeding seasons, the information in the respective Appendix A tables from Furness (2015) should be used as per the approach the Applicant had taken for non-breeding season apportionment to SPAs. As the SSSI colony will not be specifically listed in the Furness (2015) tables, we advised that apportionment is informed by use of the adult proportion of birds for the 'western non-SPA colonies' in the Furness (2015) Appendix A tables (REP1-099, paragraph 29). The Applicant has not followed this approach in REP3-056, and instead appears to have taken different approaches depending on the feature assessed – i.e. following the Mona Applicant's approach for razorbill and kittiwake non-breeding season colony apportionment, but assuming 100% of adults from the SSSI colony will remain in the respective non-breeding season BDMPS for guillemot.	The Applicant notes this response and welcomes confirmation from NRW (A) that the Project alone apportioning for the non-breeding season is acceptable.
REP4-074-09	For each species and non-breeding season, the Applicant has calculated the number of adults from the Pen y Gogarth/Great Orme's Head SSSI expected to remain within the relevant species non-breeding season BDMPS and calculated the apportionment rate based on the number of adult birds from the colony expected to be present as a proportion of the BDMPS adult bird total. This is in contrast to the approach taken by the Applicant for apportionment in the non-breeding season for the SPAs in the Report to Inform Appropriate Assessment (RIAA) (REP1-012, updated version). Here, the Applicant calculated the apportionment rate based on the number of adult birds from the colony expected to be present as a proportion of the BDMPS all ages bird total. The approach taken for the SPAs follows the NRW advised standard approach. Therefore we recommend that the apportionment to the	

ID	NRW comment	Applicant response
	SSSI for the non-breeding season(s) should be based on the proportion of the SSSI adult birds (we suggest that this is based on the adult proportion of birds for the UK western non-SPA colonies in the Furness 2015 Appendix A tables as advised in our Written Representations (REP1 099)) and applied across the BDMPS total of birds of all ages for each relevant non-breeding BDMPS season. In NRW response document: Table 1 Comparison of non-breeding season apportionment rates to the Pen y Gogarth/Great Orme's Head SSSI calculated via the NRW advised approach and those used by the Applicant in REP3-056	
REP4-074-10	Based on the above, the Applicant's approach to calculating non-breeding season apportionment rates for the project alone appears to be precautionary (see Table 1). However, we note that in this case for the project alone, as the numbers of birds involved are small, our preferred approach to calculating non-breeding season(s) apportionment rates to the SSSI does not result in significant differences in the adult bird abundances (auks) or adult densities (kittiwake) apportioned to the site in terms of annual project alone totals. Therefore, it also does not result in significant differences to the annual predicted project alone displacement and collision mortalities to the colony. However, this may not be the case for other offshore wind development sites where higher numbers/densities of birds are recorded. Therefore, we advise that other projects do not use the Applicant's approach to apportioning non-breeding season impacts to SSSI colonies where an assessment of impacts to SSSI breeding seabird colonies is required. This advice was also provided during the Mona examination (see Section 2.2.1 of NRW (A)'s Deadline 2 response: EN010137-000953-Natural Resources Wales Deadline 2 Submission 27.08.2024.pdf).	
REP4-074-11	**Cumulative assessments** NRW (A) welcome that the Applicant has undertaken a cumulative assessment of impacts on the Pen y Gogarth/Great Orme's Head SSSI features in REP3-056 and included the gap-filled historic projects in these cumulative assessments. However, after reviewing the Applicant's approach to apportionment of impacts from OWF projects in the cumulative assessments, we have significant concerns. We consider that the approach may underestimate the potential levels of cumulative impacts. As	The Applicant has presented an update to the assessment for Great Orme's Head SSSI within Chapter 12 Offshore Ornithology has been submitted alongside this document at Deadline 5 (Chapter 12 Offshore Ornithology_Rev 03 Clean). Following a consultation meeting

ID	NRW comment	Applicant response
	a result, we consider it inappropriate to comment on the potential significance of cumulative impacts at this stage.	with NRW (A) on 11 February 2025, the Applicant understands that the approach used by the Morgan Generation Assets project to calculate apportioned effects of cumulative projects is considered acceptable by NRW (A). Therefore, the Applicant has used the respective values from the most recent assessment for Great Orme's Head SSSI presented by the Morgan project to update the cumulative assessment. The Applicant therefore considers that this updated assessment addresses NRW (A)'s issues of concern.
REP4-074-12	For the apportionment of impacts from projects included in the cumulative assessment - both for the breeding and the non-breeding seasons - the Applicant appears to have applied the non-breeding season stable age structures from Furness (2015) to apportion impacts to adults before applying calculated colony apportionment rates. This approach does not appear to have been used in the assessment of project alone impacts and consequently there appears to be different abundance and collision estimates for the Morecambe Generation Assets project in the cumulative assessment compared to those predicted in the project alone assessments. NRW (A) advise that this issue is given further consideration.	
REP4-074-13	As advised in our Deadline 3 response (REP3-094, paragraph 6), given the issues/lack of clarity regarding consented lifespans of early offshore wind projects, we recommend that the Barrow and North Hoyle projects are included within the cumulative assessments and are gap filled where required. Additionally, in line with our advice for the Mona and Morgan Generation Projects, we also recommend including the Llŷr 1 project within these assessments.	The Applicant confirms that the Llŷr 1 project is included in the updated cumulative assessment presented within Chapter 12 Offshore Ornithology at Deadline 5 (Chapter 12 Offshore Ornithology_Rev 03 Clean). Barrow and North Hoyle projects have not been included; and the reasons for this are set out in the Applicant's previous submissions to the Examination. In summary, the Applicant considers that continued operation of these projects beyond their consented lifespan would require further consent/licensing, which would require those projects to undertake further assessment, including consideration of cumulative effects. Furthermore, including these projects would risk over-precaution in the

ID	NRW comment	Applicant response
		assessment, when there would be limited or no overlap with the operation of the Project. The Applicant notes that inclusion of these projects would make only a very small difference to predicted increase in mortality for assessed species and would make no difference to assessment conclusions. The Applicant has discussed this with NRW on the 6 March and NRW has confirmed that the inclusion of these projects would not alter their conclusions.
REP4-074-14	**Breeding season apportionment in cumulative assessments** NRW (A) do not agree with the use of the Furness (2015) non-breeding season stable-age structures for age-class apportioning during the breeding season. This advice was also provided during the Mona project examination regarding their SPA in-combination and Great Orme's Head SSSI cumulative assessments (see Sections 1.1.2 and 1.1.4.3.2 of NRW (A)'s Deadline 5 response: EN010137-001765-Natural Resources Wales - Deadline 5 Submission.pdf). Furness (2015) does not present a stable age structure for the breeding season-the report covers purely the non-breeding season(s). The UK Western waters (and for some species, the Channel) cover a vast area, incorporating all territorial waters from the west of Cornwall in the south, and Orkney in the north. Given the scale, the ratio of adults to immature birds is likely to be highly spatially variable, and there is no basis to assume that the ratio is applicable to a small project study area. This is essentially what the Applicant is doing when age class apportioning predicted EIA scale impacts for each individual project included in the cumulative assessment for the SSSI colony. It is noted by Furness (2015) that: "*at sea distribution of seabirds differs between age classes, with youngest birds tending to spend their time in the winter quarters even during summer, breeding adults tending to stay closest to their breeding area, and immature birds probably at sea in areas that have good food supplies, but are away from large colonies. Therefore, it is not clear that any at sea*	See response to ID REP4-074-11 - REP4-074-12 above. The Applicant considers that updates incorporated into the update of Chapter 12 Offshore Ornithology at Deadline 5 (Chapter 12 Offshore Ornithology_Rev 03 Clean), including information for cumulative projects, address NRW (A)'s concerns.

ID	NRW comment	Applicant response
	data on proportions of different age classes would provide a secure test of the estimated proportions based on demographic data."	
REP4-074-15	In the Morecambe project-alone assessments in the RIAA (REP1-012, updated version), the Applicant has used the proportions of adults recorded during the breeding season in the site-specific Digital Aerial Survey (DAS) data. For species where age-class identification was not possible from site-specific DAS, it was assumed that 100% of birds were adults, in line with SNCB advice. Site-specific breeding season age class data are available for kittiwake for some of the other projects included in the cumulative assessment (see Table 2 below) and we therefore advise that this information is used for these projects. For all other projects where there is no site-specific data available (e.g. gap-filled historic projects), or for species where age-class identification is not possible (e.g. auks), the approach of assuming 100% of birds are adults should be applied. Additionally, Table 2 below indicates that the proportions of adult kittiwakes recorded in the surveys for these projects are higher than those from the Furness (2015) stableage structure used by the Applicant. **Therefore, we consider that the Applicant's approach of apportioning according to the stable age structure ratio risks significantly underestimating cumulative impacts on adult breeding birds.** In NRW response document: Table 2 Proportions of adult kittiwake recorded in site-specific DAS data in breeding season at individual projects compared with stable-age structures used by the Applicant for breeding season age-class apportioning in the Pen y Gogarth/Great Orme's Head SSSI	
REP4-074-16	**Non-breeding season apportionment in cumulative assessments** NRW (A) refer to comments in Section 1.3.2.2.2 regarding the Applicant's approach to non-breeding season apportionment for the project alone. It appears that in the Applicant's approach to non-breeding season apportioning in the cumulative assessment, the Applicant has applied the same approach used for calculating the non-breeding season apportionment of impacts to the SSSI site. For example, a 0.49% apportionment rate to the SSSI for kittiwake in the spring migration season	See response to ID REP4-074-11 - REP4-074-12 above. The Applicant considers that updates incorporated into the update of Chapter 12 Offshore Ornithology at Deadline 5 (Chapter 12 Offshore Ornithology_Rev 03 Clean),

ID	NRW comment	Applicant response
	has been applied to all projects in the cumulative assessment. However, in the cumulative assessment, the Applicant has also apportioned the impacts to age-classes (i.e. to adults) before applying the site apportionment rate. The age-class apportionment of impacts to adults prior to apportionment of impacts to the SSSI again uses the stable age-structures from Furness (2015).	including information for cumulative projects, address NRW (A)'s concerns.
REP4-074-17	We note that the Applicant's approach in the cumulative assessment was also taken by the Mona Applicant in their apportionment to SPAs and the Great Orme's Head SSSI for the non-breeding season (i.e. age-classes and apportioning to the SSSI) in their SSSI cumulative and HRA in-combination assessments. Whilst this caused significant confusion during the Mona examination, it was eventually agreed that the Mona Applicant's and the SNCB/NRW's approaches would result in the same apportioning percentages as both approaches are using different calculations to reach the same outcome (see Section 1.4.2 of Mona Applicant's Deadline 4 submission: Offshore ornithology apportioning clarification note and Section 1.1.4.3.1 of NRW's Deadline 5 response: EN010137-001765-Natural Resources Wales - Deadline 5 Submission.pdf). However, we would welcome further discussion or clarification from the Morecambe Applicant that this is also the case in this instance.	
REP4-074-18	**Percentage displacement and percentage mortality rates assessed in auk feature displacement assessments** In our Written Representations (REP1-099), NRW (A) advised that guillemot and razorbill displacement assessments should be based on the displacement matrix approach. Due to the uncertainty around specific displacement and mortality rates, the assessments should consider a range of displacement rates (i.e., for auks 30-70% displacement and 1-10% mortality). We welcome that the Applicant has presented project alone and cumulative apportioned impacts across the advised range of 30-70% displacement and 1-10% mortality in REP3-056 for both guillemot and razorbill displacement assessments. However, we note that the Applicant has only run PVAs on the project alone and cumulative predicted impacts using the Applicant's preferred rates of 50% displacement and 1% mortality for both species. We advise that PVAs should also be run, and the outputs provided for the advised Worst-Case Scenario (WCS) impacts, (i.e. at 70% displacement and 10% mortality	See response to REP4-074-11 - REP4-074-12 above. The Applicant considers that updates incorporated into the update of Chapter 12 Offshore Ornithology at Deadline 5 (Chapter 12 Offshore Ornithology_Rev 03 Clean), including information for cumulative projects, address NRW (A)'s concerns. The updates include Population Viability Analysis (PVAs) undertaken for Worst-Case Scenario (WCS) impacts.

ID	NRW comment	Applicant response
	for both auk species) as the predicted impacts in this scenario for the SSSI exceed 1% baseline mortality for the project alone and cumulatively for both species. This information is required before we can reach conclusions on the level of significance of the predicted cumulative impacts on auk features of the Pen y Gogarth/Great Orme's Head SSSI. We note that both the Mona and Morgan Generation Assets have run PVAs for the advised WCS cumulative impacts on guillemot and razorbill for this SSSI. As these models could be considered to represent best available evidence at this time, the Applicant could consider referring to them and presenting the relevant information including the output metrics (counterfactuals, growth rates etc).	
REP4-074-19	NRW (A) highlight the recent Mona and Morgan Generation Assets Offshore Windfarm examinations, where we have concluded that a significant adverse impact (i.e., not significant at EIA scale) can be ruled out for cumulative displacement on guillemot and razorbill features of the Pen y Gogarth/Great Orme's Head SSSI. Given that the Morecambe Generation Assets project is in examination concurrently with the Mona and Morgan Generation projects, and that all three projects are in the north Irish Sea/Liverpool Bay area, we would expect the cumulative assessments to include the same projects and similar totals for all three projects. Therefore, we consider it likely that we will be able to reach the same conclusions regarding cumulative assessments for these features of the Pen y Gogarth/Great Orme's Head SSSI for the Morecambe Project. However, we cannot form this conclusion definitively until further consideration of our advice on cumulative assessments in Section 1.3.2.3, and the required PVA outputs for the advised WCS (Section 1.3.2.4, paragraph 19) are presented by the Applicant.	
REP4-074-20	**Species specific comments** **Guillemot** As noted in Section 1.3.2.4, the Applicant has only run PVAs for predicted alone and cumulative impacts based on predicted impacts for the Applicant's preferred rates of 50% displacement and 1% mortality. NRW (A) advise that, given the uncertainty and variability in guillemot displacement impacts from OWFs, a range of rates from 30-70% displacement and 1-10% mortality should be considered. Whilst the Applicant has presented predicted impacts across this range, they have not run PVAs for the	See response to ID REP4-074-11 - REP4-074-12 above. The Applicant considers that updates incorporated into the update of Chapter 12 Offshore Ornithology at Deadline 5 (Chapter 12 Offshore Ornithology_Rev 03 Clean), including information for cumulative projects, address NRW (A)'s concerns.

ID	NRW comment	Applicant response
	WCSs. For the project alone, the predicted impact for the WCS of 70% displacement and 10% mortality is 50.82 guillemots per annum from the SSSI, equating to 20.94% of baseline mortality of the SSSI colony (REP3-056, Table 5.1). For the cumulative assessment, the predicted impact for this WCS is 91.87 guillemots per annum from the SSSI, equating to 37.86% of baseline mortality of the SSSI colony (REP3-056, Table 5.3 and 5.4). As noted in Section 1.3.2.3.1, this cumulative total is likely an underestimate due to the Applicant's use of 57% adults (from the stable age structure from Furness (2015)) during the breeding season to apportion to adults, rather than the advised approach of assuming 100% of birds are adults (as was undertaken for the SPAs in the Report to Inform Appropriate Assessment (RIAA) (REP1-012, updated version)).	The updates include PVAs undertaken for WCS impacts.
REP4-074-21	When advising on the level of significance of impacts to the SSSI, NRW (A) will consider the full range of predicted impacts. However, for us to do this, we would advise that the Applicant also provides PVA outputs for the WCS/upper end of the advised range of rates where the predicted impacts for this exceed 1% baseline mortality of the relevant populations. This is the case for both project alone and cumulative impacts.	
REP4-074-22	**Razorbill** As noted in Section1.3.2.4, the Applicant has only run PVAs on the predicted alone and cumulative impacts based on predicted impacts for the Applicant's preferred rates of 50% displacement and 1% mortality. NRW advise that, given the uncertainty and variability in razorbill displacement impacts from OWFs, a range of rates from 30-70% displacement and 1-10% mortality should be considered. Whilst the Applicant has presented the predicted impacts across this range, they have not run PVAs on the WCSs. For the project alone, the predicted impact at the WCS of 70% displacement and 10% mortality is two razorbills per annum from the SSSI, which equates to 3.9% of baseline mortality of the SSSI colony (REP3-056, Table 5.6). For the cumulative assessment, the predicted impact for this WCS is 5.51 razorbills per annum from the SSSI, which equates to 10.58% of baseline mortality of the SSSI colony (REP3-056, Table 5.8 and 5.9). As noted in Section 1.3.2.3.1, this cumulative total is likely an underestimate due to the Applicant's use of 57% adults (from the stable age structure from Furness (2015)) in the breeding season to	See response to REP4-074-11 - REP4-074-12 above. The Applicant considers that updates incorporated into the update of Chapter 12 Offshore Ornithology at Deadline 5 (Chapter 12 Offshore Ornithology_Rev 03 Clean), including information for cumulative projects, address NRW (A)'s concerns. The updates include PVAs undertaken for WCS impacts. The Applicant can also confirm that the updated PVA for razorbill cumulative effects at Great Orme's Head SSSI (and also the assessment for razorbill at Skomer, Skokholm and the Seas off Pembrokeshire Special

ID	NRW comment	Applicant response
	apportion to adults, rather than the advised approach of assuming 100% of birds are adults (as was undertaken for the SPAs in the RIAA (REP1-012, updated version)).	Protection Area (SPA) presented in the updated Report to Inform Appropriate Assessment (RIAA) (REP4-009) has utilised the corrected rates that are now available in the PVA tool.
REP4-074-23	When advising on the level of significance of impacts to the SSSI, NRW (A) will consider the full range of predicted impacts. However, to do this, we advise that the Applicant updates the cumulative assessment to take account of the comments in Section 1.3.2.3 and provides PVA outputs for the WCS/upper end of the advised range of rates where the predicted impacts for this exceed 1% baseline mortality of the relevant populations, which is the case here for both project alone and cumulative impacts.	
REP4-074-24	REP3-056, Paragraph 178 states: 'Due to an apparent error in the Natural England Seabird PVA tool for razorbill (January 2025), guillemot demographic parameters were used as a proxy to run the PVA.' We assume that the error the Applicant is referring to is regarding the default global immature survival rates provided in the JNCC/NE PVA tool being incorrect, as they represent compound values across immature age classes, taken from Horswill & Robinson (2015), rather than age specific values. This includes the rates for razorbill. This issue was identified in March 2024 and, alongside the advised corrections for affected species, was included in the Natural England (NE) and NRW (A) interim advice note, which was submitted in NE's Morecambe Relevant Representations (RR-061) in August 2024. Therefore, we question why the Applicant has used guillemot demographic parameters as a proxy and suggest that the PVAs are run with the advised razorbill corrected figures. We also understand that NE updated the PVA tool default rates to correct these compound rates with those advised in the NE and NRW (A) interim advice note in December 2024.	
REP4-074-25	**Kittiwake** In the RIAA (REP1-012, updated version), the Applicant applied site-specific information on the proportion of adult kittiwakes recorded in the baseline digital aerial survey data (DAS) during the breeding season, to age class apportion predicted impacts to the SPAs to adult kittiwakes only. In the Pen y Gogarth/Great Orme's Head SSSI breeding season assessment for the project alone, the Applicant does not appear to have applied any age-class apportionment using the DAS data to age-class apportion kittiwake in the breeding season. We would welcome	See response to ID REP4-074-11 - REP4-074-12 above. The Applicant considers that updates incorporated into the update of Chapter 12 Offshore Ornithology at Deadline 5 (Chapter 12 Offshore Ornithology_Rev 03 Clean), including information for cumulative projects, address NRW (A)'s concerns.

ID	NRW comment	Applicant response
	clarification on this issue. We suggest that the proportion of adult kittiwakes in the breeding season DAS survey data could be used to inform ageclass apportionment of impacts in the breeding season for the SSSI assessment in the same way as in the SPA assessments. However, as it appears that the Applicant has assumed 100% of birds in the breeding season are adult and that the apportioned impacts from the project alone are potentially precautionary, we have used the Applicant's predicted impacts to assess the significance of the predicted collision impact from the project alone.	
REP4-074-26	The impact from the project alone is predicted to be 0.78 kittiwake collisions per annum from the SSSI (REP3-056, Table 5.11), equating to 0.47% of baseline mortality for the colony (based on the 2023 colony count and an adult mortality rate of 14.6%, as used by the Applicant). We note that the predicted mortality at the upper 95% Confidence Interval (CI) from the stochastic Collision Risk Model (sCRM) of 1.73 collisions per annum equates to 1.04% of baseline mortality of the colony. Given that the Applicant's apportioned impacts may be slightly overly precautionary and that the predicted level of mortality only just exceeds 1% of the baseline mortality rate of the colony towards the upper end of the 95% CIs, we agree that the predicted impact from collision on the kittiwake feature of the Great Orme's Head SSSI from the project alone could be considered to be of minor adverse significance (i.e., not significant in EIA terms).	
REP4-074-27	For cumulative assessments, we recommend the Applicant considers the advice provided in Section 1.3.2.3. However, we highlight the recent Mona and Morgan Offshore Windfarm examinations, where we concluded that a moderate adverse effect (i.e., significant at EIA scale) cannot be ruled out for cumulative collisions for the kittiwake feature of the Great Orme's Head SSSI. Since the Morecambe Generation Assets project is in examination concurrently with the Mona and Morgan Generation Assets projects and that all three projects are in the north Irish Sea/Liverpool Bay area, we would expect the cumulative assessment to include the same projects and have similar cumulative totals for all three projects. Therefore, we consider it likely that we will reach the same conclusions regarding cumulative kittiwake collision for the Great Orme's Head SSSI for the Morecambe Project.	

ID	NRW comment	Applicant response
	However, we cannot form this conclusion definitively until the Applicant provides updated assessments considering our comments above.	
REP4-074-28	**Minor Comments** We note that in REP3-056, paragraph 134, the Applicant states that: 'The qualitative assessment of SSSIs provided in paragraphs 12.423 - 12.424 of ES Volume 5, Chapter 12 (REP1-032) concluded that impacts on individual SSSIs would be of negligible magnitude (except for great black-backed gull associated with Puffin Island SSSI)…..' We advise that great black-backed gull is not a qualifying/notified feature of the Ynys Seiriol / Puffin Island SSSI; the only seabird qualifying/notified feature of this site is cormorant.	The Applicant thanks NRW (A) for clarification on this matter and has removed this reference from the updates incorporated into the update of Chapter 12 Offshore Ornithology at Deadline 5 (Chapter 12 Offshore Ornithology_Rev 03 Clean).
REP4-074-29	**Offshore Ornithology Technical Note 2 (HRA), Revision 02 (REP3-058: clean/REP3-059: tracked)** **General Comments** Our advice below focuses on the updated assessments for the Welsh SPAs only, as these are the sites within our remit.	The Applicant notes this response**.**
REP4-074-30	**Project Alone Assessments** NRW (A) welcome the Applicant's update to the apportioned project alone impacts for the Manx shearwater and gannet features of the relevant Welsh SPAs to account for the updated Manx shearwater and gannet project alone EIA scale assessment presented by the Applicant in Section 2.2.1.4 of REP3-056 (Manx shearwater) and in Section 4 of PD1-010 (gannet).	The Applicant welcomes NRW (A)'s agreement on this matter, and confirms that these updates were incorporated into Rev 03 of the RIAA submitted at Deadline 4 (REP4-009).
REP4-074-31	NRW (A) agree with the apportionment approaches used for these sites and features for the project alone assessment and welcome the provision of the full displacement matrices for the project alone impacts in REP3-058.	
REP4-074-32	Based on the information provided for these sites and features, we can now reach conclusions on the potential significance of project alone impacts to these features of the relevant Welsh designated sites (see Sections 1.4.2.1.11.4.2.2.11.4.2.3.1 for detail). However, as the RIAA will likely serve as a key reference for future projects to access the apportioned abundances and predicted impacts for the Morecambe	

ID	NRW comment	Applicant response
	Generation Assets project, to include in future in-combination assessments, we advise that the Applicant includes these corrected figures and assessments in an updated version of the RIAA.	
REP4-074-33	**In-combination Assessments** NRW (A) welcome the inclusion of gap-filled historic projects in the in-combination assessments presented for the following Welsh SPAs and features: • Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island (AC & BI) SPA: Manx shearwater • Sgomer, Sgogwm a Moroedd Penfro/Skomer, Skokholm and seas off Pembrokeshire (SSSP) SPA: Manx shearwater	The Applicant has presented an update to the assessment for Welsh SPAs at Deadline 4 (REP4-009). Following a consultation meeting with NRW (A) on 11 February 2025, the Applicant understands that the approach used by the Morgan Generation Assets project to calculate apportioned effects of in-combination projects is considered acceptable by NRW (A). Therefore, the Applicant has used the respective values from the most recent assessment presented by the Morgan project to update the in-combination assessment. The Applicant therefore considers that this updated assessment addresses NRW (A)'s issues of concern.
REP4-074-34	However, we have some concerns regarding the apportionment approaches used in these in-combination assessments. The Applicant has applied a weighted mean approach to calculate an annual apportionment rate for SPA colonies for each OWF included in the in-combination assessments. This annual apportionment rate approach differs from the standard approach to apportionment, which is to use seasonal breakdowns of impacts and seasonal apportionment rates for each project included in the in-combination assessment. We are concerned that the approach may underestimate apportioned impacts.	
REP4-074-35	Regarding the weighted mean approach to calculating an annual apportionment rate to the Manx shearwater SPA colonies for each season, it is unclear whether the Applicant has included the non-breeding/winter season (Nov-Feb) in the calculation. Given the species is not thought to overwinter successfully in British waters (Furness 2015) if this time is included, then it risks underestimating the results. Clarification is required from the Applicant on this matter.	
REP4-074-36	In paragraph 37 of REP3-058, the Applicant states that for the apportioning of the gap-filled projects, 'a weighted average annual apportioning rate was used, based on the total (annual) population estimate for each project, due to the lack of reliable seasonal data.' We find this statement unclear. The Mona and Morgan Generation Assets projects were able to use seasonal breakdowns of predicted impacts for each project going into their in-combination assessment, including for the gap-filled projects, and were able to apply different seasonal apportionment rates (e.g. Mona	

ID	NRW comment	Applicant response
	Applicant's Deadline 7 submission: E1.3.1_Mona_SNCB offshore ornithology ISAA Supporting Information.docx). The Morecambe Applicant has also been able to include seasonal breakdowns of impacts for the other projects (again including the gap-filled projects) in their Pen y Gogarth/Great Orme's Head SSSI cumulative assessment along with different seasonal apportionment rates (REP3-056). We seek clarification or justification as to why the Applicant has undertaken different approaches for the apportionment of impacts in the SPA in-combination assessments and the SSSI cumulative assessment.	
REP4-074-37	Additionally, we note our comments in our Deadline 3 response (REP3-094, paragraphs 10-11) regarding the inclusion of gap-filled projects in updated incombination assessments for the other Welsh SPA and feature combinations in the RIAA (REP1-012, updated version). This has not been done in REP3-058 and hence remains outstanding for the SSSP SPA for the following features: lesser black-backed gull (collision), assemblage named components guillemot and razorbill (both for displacement). Consequently, we are unable to reach conclusions on in-combination impacts for these features of the SSSP SPA at this stage.	
REP4-074-38	**Conclusions/advice regarding the Welsh SPAs assessed in REP3- 058** **Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island (AC & BI) SPA: Manx shearwater** **Project Alone Impacts** Based on the predicted impacts in REP3-058, Table 3.5 and 3.6, the Applicant calculates that the project alone displacement total is 1–32 adult Manx shearwaters from the AC & BI SPA per annum (based on 30-70% displacement and 1-10% mortality). This equates to 0.03-0.75% of baseline mortality for the AC & BI SPA Manx shearwater colony, which is below 1% of baseline mortality and can be considered undetectable against background mortality. As a result the Manx shearwater population Conservation Objective target of 20,000 adults (10,000 pairs)1 is achievable. Based on these figures, we agree with the Applicant that there would be no adverse effect on site integrity (AEoSI) for **predicted displacement** impacts on the Manx shearwater feature of the AC & BI SPA from the project alone.	The Applicant welcomes NRW (A)'s agreement on this matter, and notes that these updates were incorporated into Rev 03 of the RIAA submitted at Deadline 4 (REP4-009).

ID	NRW comment	Applicant response
REP4-074-39	**In-Combination Impacts** The Applicant has calculated that an in-combination total of 704 Manx shearwaters from the AC & BI SPA are at risk of displacement (REP3-058, Table 3.7). Based on an advised range of 30-70% displacement and 1-10% mortality, the predicted in-combination displacement mortality is 2-49 adult Manx shearwaters from the AC & BI SPA per annum, equating to 0.05-1.17% of baseline mortality for the AC & BI SPA Manx shearwater colony. This is at the upper end of the range of % displacement and % mortality rates and hence requires further consideration through PVA. However, the Applicant has not undertaken a PVA for the WCS, relying solely on their preferred rates of 50% displacement and 1% mortality. We advise that the Applicant undertakes a PVA for the advised WCS.	See response to 1.4.1.2 above. The Applicant considers that updates incorporated into Rev 03 of the RIAA submitted at Deadline 4 (REP4-009) address NRW (A)'s concerns on these matters.
REP4-074-40	As noted in Section 1.4.1.11.4.1.2 above, we have concerns that the Applicant's in-combination total impacts may be underestimated due to the use of their weighted mean annual apportionment rates. We note that during the Mona and Morgan Generation Assets project examinations, we have recently been able to conclude that an AEoSI could be ruled out for in-combination Manx shearwater displacement impacts for the AC & BI SPA based on higher predicted incombination impacts than those predicted in REP3-058 by the Morecambe Applicant:	
REP4-074-41	Mona Generation Assets (Deadline 7 submission, E1.3.1_Mona_SNCB offshore ornithology ISAA Supporting Information.docx): The predicted in-combination total impact was estimated to be 3-64 adult Manx shearwaters from the AC & BI SPA per annum (for 30-70% displacement and 1-10% mortality), higher than the Morecambe Applicant's figure in REP3-058.	
REP4-074-42	Morgan Generation Assets (offshore ornithology summary spreadsheet, EN010136-000795-S_D5a_16.2 Annex 16.2 to Ornithological assessment clarification data Welsh sites.xlsm): the predicted in-combination total impact was estimated to be up to 80 adult Manx shearwaters from the AC & BI SPA per annum (based on a WCS of 70% displacement and 10% mortality), also exceeding the Morecambe Applicant's figure in REP3-058	
REP4-074-43	Given that the Morecambe, Mona and Morgan Generation Asset projects are in examination at the same time and all three projects are in the north Irish	

ID	NRW comment	Applicant response
	Sea/Liverpool Bay area, we would expect the in-combination assessment to include the same projects and produce similar totals. Therefore, we anticipate reaching the same conclusions regarding in-combination Manx shearwater displacement for the AC & BI SPA at Morecambe. However, to do this, we advise that the Applicant considers the comments above regarding their in-combination assessment and provide PVA outputs for the WCS/upper end of the advised range of rates where the predicted impacts for this exceed 1% baseline mortality of the relevant populations, which is the case here for the Applicant's potentially underestimated impacts. We note that both the Mona and Morgan Generation Applicants have run PVAs for the WCS scenario predicted impacts (see above) for this feature of the SPA. As these models represent the best available evidence at this time, the Applicant could consider referring to these and presenting information including the output metrics (counterfactuals, growth rates etc) in any updated assessment.	
REP4-074-44	**Sgomer, Sgogwm a Moroedd Penfro/Skomer, Skokholm and seas off Pembrokeshire (SSSP) SPA: Manx shearwater** **Project Alone Impacts** NRW (A) note a potential error in the SPA population of breeding adults (REP3-058, paragraph 43). The Applicant quotes this as 455,156 adults and then states that using a 0.13 adult mortality rate, the baseline mortality is 118,341 breeding adult mortalities from the SPA per annum. We note that the units for SPA count figure of 455,156 is apparently occupied sites (AOS), meaning the actual number of breeding adults is 455,156 x 2 = 910,312 breeding adults. We assume that the Applicant has correctly used the figure of 910,312 breeding adults in the calculation of baseline mortality for the colony because 910,312 x 0.13 = 118,341 and misquoted the initial population figure.	The Applicant welcomes NRW (A)'s agreement on this matter, and notes that these updates were incorporated into Rev 03 of the RIAA submitted at Deadline 4 (REP4-009).
REP4-074-45	Based on the predicted impacts in REP3-058, Table 3.13 and 3.14, the Applicant calculates that the project alone displacement total is 12-288 adult Manx shearwaters from the SSSP SPA per annum (based on 30-70% displacement and 1-10% mortality). This equates to 0.01-0.24% of baseline mortality for the SSSP SPA Manx shearwater colony, which is below 1% of baseline mortality and considered undetectable against background mortality. Hence there will remain a	

ID	NRW comment	Applicant response
	thriving Manx shearwater population at the site and the Conservation Objective target population of 300,000 adults (150,000 pairs)2 could be met. On this basis, we agree with the Applicant that there **would be no Adverse Effect on Site Integrity (AEoSI) for predicted displacement impacts on the Manx shearwater feature of the SSSP SPA from the project alone.**	
REP4-074-46	**In-Combination Impacts** The Applicant has calculated that an in-combination total of 15,813 Manx shearwaters from the SSSP SPA are at risk of displacement (REP3-058, Table 3.15). Based on an advised range of 30-70% displacement and 1-10% mortality, the predicted in-combination displacement mortality is 47-1,107 adult Manx shearwaters from the SSSP SPA per annum, equating to 0.04-0.94% of baseline mortality for the SSSP SPA Manx shearwater colony.	See response to ID REP4-074-33 - REP4-074-37 above. The Applicant considers that updates incorporated into Rev 03 of the RIAA submitted at Deadline 4 (REP4-009) address NRW (A)'s concerns on these matters.
REP4-074-47	As noted in Section 1.4.1.2 above, we are concerned that the Applicant's calculated in-combination total impacts are underestimated due to the use of their weighted mean annual apportionment rates. For the Mona and Morgan Generation Assets project examinations, we have been able to rule out an AEoSI for incombination Manx shearwater displacement impacts for the SSSP SPA based on higher predicted in-combination impacts than those predicted in REP3-058 by the Morecambe Applicant:	
REP4-074-48	Mona Generation Assets (Deadline 7 submission,E1.3.1_Mona_SNCB offshore ornithology ISAA Supporting Information.docx): The in-combination total predicted impact was estimated to be 66-1,547 adult Manx shearwaters from the SSSP SPA per annum (for 30-70% displacement and 1-10% mortality), which is higher than the Morecambe Applicant's figure in REP3-058.	
REP4-074-49	Morgan Generation Assets (offshore ornithology summary spreadsheet,EN010136-000795-S_D5a_16.2 Annex 16.2 to Ornithological assessment clarification data Welsh sites.xlsm): The in-combination total predicted impact was estimated to be up to 1,932 adult Manx shearwaters from the SSSP SPA per annum (based on a WCS of 70% displacement and 10% mortality), which is also higher than the Morecambe Applicant's figure in REP3-058.	

ID	NRW comment	Applicant response
REP4-074-50	Given that the Morecambe, Mona and Morgan Generation Asset projects are in examination at the same time and all three projects are in the north Irish Sea/Liverpool Bay area, we would expect the in-combination assessment to include the same projects and produce similar totals. Therefore, we anticipate reaching the same conclusions regarding in-combination Manx shearwater displacement for the SSSP SPA for the Morecambe Project. However, in order to reach this conclusion, we advise that the Applicant considers the comments above regarding the in-combination assessment and provides PVA outputs for the WCS/upper end of the advised range of rates where the predicted impacts for this exceed 1% baseline mortality of the relevant populations, which is the case here for the Applicant's potentially underestimated impacts. We note that both the Mona and Morgan Generation Applicants have run PVAs for the WCS scenario predicted impacts (see above) for this feature of the SPA. As these models represent the best available evidence at this time, the Applicant could consider referring to these and presenting information including the output metrics (counterfactuals, growth rates etc) in any updated assessment.	
REP4-074-51	**Grassholm SPA: Gannet** **Project Alone Impacts** According to REP3-058, Table 3.20, it appears that the Applicant used the 2015 Grassholm SPA gannet colony count to calculate baseline mortality. However, the Highly Pathogenic Avian Influenza (HPAI) outbreak caused large numbers of mortalities in 2022 and 2023 with the Grassholm SPA gannet colony experiencing 52% reduction in nesting pairs from 2022 to 2023 (Johnstone et al. 2022). This is reflected in Seabird Monitoring Programme (SMP) counts:78,584 adults in 2009, 72,022 in 2015, 32,964 in 2023 and 39,398 in 2024. As the Morecambe Generation Assets site-specific data were collected from March 2021 to February 2023, they overlap with the 2022 HPAI outbreak. Therefore, NRW (A) advise that the 2023 colony count is included in baseline mortality calculations.	The Applicant welcomes NRW (A)'s agreement on this matter, and notes that these updates were incorporated into Rev 03 of the RIAA submitted at Deadline 4 (REP4-009).
REP4-074-52	Tracking data (e.g. from Votier et al. 2010) and utilisation distributions (e.g. Wakefield et al. 2013) suggest that gannets have been shown to display spatial segregation between colonies, making it unlikely that gannets from Grassholm SPA will forage in the Morecambe Generation Assets project area. Therefore, we are	

ID	NRW comment	Applicant response
	content that the Applicant has considered there to be no connectivity with the site during the breeding season and hence, has not apportioned any impacts to the site in the breeding season.	
REP4-074-53	Evidence suggests that gannets show strong macro-avoidance of offshore windfarms (e.g. Dierschke et al. 2016; Pavat et al. 2023). Therefore, assessments that do not consider macro avoidance should be regarded as precautionary. We are content that the Applicant has followed the advice provided by NE during the evidence plan process and applied a 70% macro avoidance rate to the collision predictions.	
REP4-074-54	Gannets have a large foraging range (mean-maximum of 516.7 km for Grassholm SPA, Woodward et al. 2019) and has a high habitat flexibility (Furness & Wade 2012), suggesting that displaced birds can readily find alternative habitats including foraging areas. Therefore, it is unlikely that in-combination displacement mortality rates would reach the upper range of 1-10% mortality previously advised by NRW (A) and is more likely to be atthe lower end of the range. Therefore, we are content that the Applicant has considered a range of 60-80% displacement and 1% mortality in REP3-058.	
REP4-074-55	Based on REP3-058, Table 3.19-3.21, a WCS of 80% displacement and 1% mortality results in 0 gannet mortalities from displacement) and 0.00 gannet collisions per annum are apportioned to the SPA from the projects alone. Hence 0 mortalities from collision plus displacement from the project alone are apportioned to the SPA. Therefore, we agree with the Applicant that there would be no AEoSI for predicted displacement, collision and collision plus displacement impacts on the gannet feature of the Grassholm SPA from the project alone.	
REP4-074-56	**In-Combination Impacts** The Applicant has not undertaken an in-combination assessment for Grassholm SPA gannets as the predicted impact from the project alone does not exceed 0.1% of baseline mortality, which is the threshold the Applicant has used for screening whether impacts are taken through to in-combination.	

ID	NRW comment	Applicant response
REP4-074-57	Since the Morecambe Generation Assets project contribution to the in-combination collision plus displacement total is predicted to be 0 gannet mortalities per annum at a WCS (80% displacement and 1% mortality, plus collisions), is unlikely to contribute to the in-combination total. **Therefore, we consider there would be no AEoSI on the gannet feature of the Grassholm SPA for predicted displacement, collision and collision plus displacement impacts from the project in-combination with other plans and projects.**	
REP4-074-58	**Liverpool Bay SPA** With regard to little gull at Liverpool Bay SPA, as noted in our Written Representations (REP1-099) and in our Deadline 3 submission (REP3-094), given that the Morecambe Generation Assets project is located wholly in English waters, we defer comment/advice regarding predicted impacts and integrity judgements of the project alone and in-combination for all qualifying features of the Liverpool Bay SPA to Natural England, this includes the little gull, red-throated diver and common scoter features.	The Applicant notes this response.
REP4-074-59	**Habitats Regulations Assessment Without Prejudice Derogation Case – Red-throated Diver at Liverpool Bay/Bar Lerpwl SPA (REP3-064)** As noted in NRW (A)'s Written Representations (REP1-099) and Deadline 3 submission (REP3-094), since the Morecambe Generation Assets project is located wholly in English waters, we defer comment/advice regarding Liverpool Bay SPA to Natural England. Therefore, we also defer advice on the red-throated diver derogation case for this SPA set out in REP3-064 to NE.	The Applicant notes this response.
REP4-074-60	**Outline Compensation Implementation and Monitoring Plan – Red-throated Diver (REP3-065)** Consistent with advice on the Liverpool Bay SPA red-throated diver derogation case (REP3-064), we defer advice on the red-throated diver outline compensation implementation and monitoring plan as set out in REP3-065 to NE.	The Applicant notes this response.

ID	NRW comment	Applicant response
2. Marine Mammals		
Marine Mammal Comments on the Applicant's submissions at Deadline 3		
REP4-074-61	**Key issues** Update to the Joint Position Statement on UXO Clearance, and Publication of Marine Noise Policy which requires the use of noise abatement systems (Key Issue 1)	The Applicant has updated Appendix 11.3 Marine Mammal Unexploded Ordnance Assessment (REP4-017) with the latest Joint Position Statement on Unexploded Ordnance (UXO) Clearance (United Kingdom (UK) Government *et al*., 2025) and the guidelines on UXO clearance (JNCC, 2025). It is noted that UXO clearance is not part of the Development Consent Order (DCO) Application and that a separate marine licence would be sought. The Applicant also notes that the draft Marine Mammal Mitigation Protocol (MMMP) for UXO clearance, that was provided for information within the DCO Application, states that noise abatement systems would be required for high order clearance (if, under exceptional circumstances, high order clearance is required) and low order would be used as a preference (REP4-027). For piling, in line with the latest joint position statement Joint Nature Conservation Committee (JNCC), Natural England and Cefas, 2025) and the marine noise policy paper (UK) Government and Defra, 2025), the Applicant has committed to implement Noise Abatement

ID	NRW comment	Applicant response
		System (NAS) for its worst case scenario (i.e., maximum strike rate and maximum hammer energy) and where required to reduce Acoustic Deterrent Device (ADD) usage to within recommended times, and to review the final mitigation requirements based on the final Project design in line with guidance. The following documents were updated and submitted at Deadline 4 to reflect this change: ▪ Chapter 11 Marine Mammals (REP4-011) ▪ Appendix 11.2 Marine Mammal Information and Survey Data (REP4-015) ▪ Appendix 11.3 Marine Mammal Unexploded Ordnance Assessment (REP4-017) ▪ Outline Underwater Sound Management Strategy (UWSMS) (REP4-049) ▪ Draft MMMP (REP4-027) Further information on the potential reduction in impact ranges, upon the application of NAS, is submitted as an Appendix to the Outline UWSMS (REP4-027) alongside this document at Deadline 5. The UWSMS has further been updated at Deadline 5 in light of discussion with Natural England and Examiners Questions (ExQ2s) regarding the different

ID	NRW comment	Applicant response
		scenarios where NAS would be required. The commitment and the agreement of required measures is secured through the UWSMS (REP4-049).
REP4-074-62	NRW (A) do not fully agree with the approach taken by the applicant in the cumulative assessment (CEA) and in-combination assessment, and do not agree that the additional information submitted at Deadline 3 is sufficient to justify this approach (Key issue 2).	The Applicant maintains that as per the conclusions agreed by NRW on the Mona and Morgan projects, there are no Adverse Effects of Integrity (AEoI) of Welsh designated sites, and the results of the in-combination assessments for the three projects align in these conclusions. The Applicant has responded NRW(A)s detailed comments below and discussed with them at a meeting on the 6th March the clarifications that would be included in the Environmental Statement (ES) and RIAA at Deadline 5 to resolve residual concerns. The Applicant considers this will enable NRW(A) to determine no AEoI, the same conclusion to that agreed on the Mona and Morgan projects. The Applicant has provided further responses below to the detailed points regarding the cumulative/in-combination assessment to allow NRW to agree the Projects conclusions, however maintains that a suitable approach has been taken that aligns with that used on a number of consented projects (Sheringham Shoal Extension Project and Dudgeon Extension Project; Norfolk Offshore Wind

ID	NRW comment	Applicant response
		Zone (also known as, Norfolk Vanguard & Norfolk Boreas Offshore Wind Farms) East Anglia 1n and 2 etc).
REP4-074-63	**Detailed Comments** **2.1. Update to the Joint Position Statement on UXO Clearance, and Publication of Marine Noise Policy which requires the use of noise abatement systems (Key Issue 1)** NRW was previously a signatory to the 2022 Joint Interim Position Statement on UXO Clearance and until 21st January 2025, the hierarchical approach taken by the applicant for UXO clearance had been sufficient.	The Applicant welcomes this response and reiterates that all recently published guidelines and policies in relation to marine noise have been considered and updated at Deadline 4 in the relevant documents: ▪ ES Chapter 11 Marine Mammals (REP4-011) ▪ Appendix 11.2: Marine Mammal Information and Survey Data (REP4-015) ▪ Appendix 11.3 Marine Mammal Unexploded Ordnance Assessment (REP4-017) ▪ Outline Underwater Sound Management Strategy (REP4-050) As noted above the Applicant has committed to NAS for the worst-case scenario considered in the ES and to review the primary and secondary measures required against the final design of the Project (to be agreed via the UWSMS).
REP4-074-64	We highlight that an update to the Join Position Statement on UXO clearance (which NRW contributed to and has endorsed) was published on 21st January 2025. The new statement requires low noise methods of clearance to be the default method, and that high order clearance should only be used in exceptional circumstances. This statement should be considered when developing mitigation plans to accompany marine licence applications.	
REP4-074-65	The Department for Environment, Food & Rural Affairs (DEFRA) have also published a Marine Noise Policy (21st January 2025). This includes expectations that from January 2025 onwards, it is expected that all offshore wind pile driving activity in English waters will be required to demonstrate they have utilised best endeavours to deliver noise reductions using primary and/or secondary noise mitigation methods in the first instance. Primary methods aim to reduce noise emissions at the source through modifications of the piling process (for example, alternative hammer types, alternative foundation types). Secondary methods aim to reduce the noise propagated through the water column during pile driving by employing systems such as casings, resonators, and bubble curtains. NRW (A) notes that the Outline Underwater Sound Management Strategy submitted by The Applicant at Deadline 3 does not currently address the need for additional mitigation measures. The UWSMS should contain a commitment to the use of Noise Abatement Systems to mitigate residual impacts.	

ID	NRW comment	Applicant response
REP4-074-66	**2.2. Marine Mammal Technical Note 1 (EIA) - Revision 02 (Volume 9) (REP3-060: clean/ REP3-061 tracked) and Marine Mammal Technical Note 2 (HRA) - Revision 02 (Volume 9) (REP3-062: clean/ REP3-062 tracked)** **2.2.1. Marine Mammals Technical Note 1 (EIA), paragraph 2; Marine Mammals Technical Note (EIA), - 2.7 Clarification on disturbance assessments (NE Ref D4 & D28)** The applicant states that: "For population modelling, if there is a continued decline of >1% per year (versus a modelled unimpacted reference population) over a set period of time (e.g. the first 6 years, based on the former Favourable Conservation Status reporting period), then there is a high likelihood that there is a significant level of effect (NRW, 2023)". NRW(A) draws the Applicant's attention that the threshold described in NRW (2023) is intended solely for assessing the impacts of auditory injury from Permanent Threshold Shift (PTS) on a population. It should not be used as a reference to support the threshold for assessing the impacts of disturbance.	The Applicant uses a number of methods to reach the overall conclusions within the assessment, including considering the number of animals disturbed at one time using DRCs and EDRs and population modelling. For population modelling while the Applicant recognises NRW's position, they maintain that, in absence of other guidance, the 1% threshold remains a valid approach for use reviewing population modelling results and in drawing overall assessment conclusions. However, while continuing to use the percentage of the decline as a one of the methods to determine the significance of effects, the Applicant has amended any references to NRW 2023 in relation to the 1% threshold in an updated ES Chapter 11 Marine Mammals and RIAA at Deadline 5. The Applicant also notes that the overall assessment conclusion is not solely based on population modelling or this threshold.
REP4-074-67	While NRW(A) has used the quoted threshold in its advice to recommend it as one possible method to determine the significance of behavioural disturbance on a population based on the outputs of Interim Population Consequences of Disturbance (IPCoD), there is currently no published guidance or position statement. Such guidance remains under development and may change. The Applicant should amend any such references to NRW (2023).	
REP4-074-68	**2.2.2. Marine Mammal Technical Note 1 (EIA) - Revision 02 (Volume 9) (REP3-060: clean/ REP3-061 tracked) - 2.7.1 Clarifications to the Project-alone assessment** NRW (A) draw the applicant's attention to the fact that the PrePARED report (Benhemma le-Gall et al. 2024) was very clear on the limitations of the data, and the	The Applicant has not directly applied the PrePARED data to any assessments and is aware of the limitations of the report. However, given the anticipated publication of a revised Effective Deterrent Radius (EDR) as a joint project

ID	NRW comment	Applicant response
	extent of how representative they could be outside of Moray Firth. The report limited itself to clearly stating that: a) The Effective Deterrent Radius (EDR) of < 10 km was only valid for the data collected in that area, b) b) The calculated EDR of < 10 km was not intended as a suggested option with which to replace the current 26 km EDR, but only to help make a case for revising it, **c)** c) The additional work needed for point (b).	by Sea Mammal Research Unit (SMRU) Consulting and JNCC, it is important to note that discussing these most recent observations of disturbances at nearly half the distance of the current EDR (JNCC *et al*., 2020) was deemed useful. This discussion emphasises that the current EDR of 26km, as applied in the Applicant's assessments (Section 11.6.3.2 in ES Chapter Marine Mammals (REP4-011)), is a precautionary assumption. The Applicant acknowledges NRW(A)'s point and has clarified in an updated ES Chapter 11 Marine Mammals and RIAA at Deadline 5 that the PrePARED report has not been directly applied in the assessment and outlines the associated limitations.
REP4-074-69	Currently, JNCC are conducting a review of the piling noise EDRs which will include re-analysis of available data, including the data collected from PrePARED in addition to unpublished data from the same project that was not used in the 2024 report. NRW (A) strongly recommends that the findings of a single report based on limited data should not be applied outside of their intended context	
REP4-074-70	**2.2.3. Marine Mammals Technical Note (EIA) - Revision 02 (Volume 9) (REP3-060 clean/ REP3-061 tracked) - 2.6.2 Clarifications to cumulative effects from underwater noise due to piling** The applicant has assessed the cumulative effects of piling noise for both auditory injury/Permanent Threshold Shift (PTS) and disturbance together. While the outputs of this assessment are welcomed and help inform the assessment considerably, NRW (A) notes that NRW (2023) recommends that when assessing auditory injury/PTS, the numbers injured should be assessed independently of disturbance.	The Applicant has stated in the ES Chapter Marine Mammals (REP4-011 and the Technical Note 1 (Environmental Impact Assessment (EIA)) (REP3-060), that Permanent Threshold Shift (PTS) ranges would be localised to each project and, therefore, the effects on animals in the potential PTS areas would not overlap. It is also highlighted that in conjunction with the latest guidance (UK Government and Defra, 2025) all projects in English waters would be required to deliver noise reduction, in order to

ID	NRW comment	Applicant response
		mitigate for PTS) so that no significant cumulative effects could arise. However, it is acknowledged there the potential for effects across the study area from multiple projects. In the updated ES Chapter Marine Mammals provided at Deadline 4 (REP4-011), cumulative population modelling is used to inform the assessment (noting the modelling combines PTS and disturbance). An overall minor adverse significance of effect (not significant in EIA terms) for cumulative PTS is presented in Section 11.7.3.2 in the ES Chapter Marine Mammals (REP4-011) in Cumulative effect 1. This issue has been closed as per WR-099-75 and requires no further action by NRW.
REP4-074-71	**2.2.4. Marine Mammals Technical Note (EIA) - Revision 02 (Volume 9) (REP3-060 clean/ REP3-061 tracked) - 2.7.2 Clarifications to cumulative effects from underwater noise due to piling** NRW (A) note that here, the Applicant has based their quantified assessments on an absolute (and therefore unrealistic) worst-case scenario based on numbers disturbed from a single day of piling, assuming all projects carried out piling on the same day. Consequently, this has led to unrealistically high numbers of animals disturbed, leading to the iPCoD results being prioritised. At this stage of the examination, we do not expect the Applicant to complete a reassessment, however for future assessments, NRW (A) recommends that this is an unsuitable approach. NRW (A) advise that when comparing two different methodologies to inform an assessment, these should be based on similar scenarios (which take into account assumed piling schedules and timetables – as can be done in iPCoD) for such a comparison to be both meaningful and valid.	The quantitative assessment approach taken in the ES Chapter Marine Mammals (REP4-011) and Section 2 of the Technical Note 1 (EIA) (REP3-060) is one method used to determine the magnitude of effects. The rationale is that it is possible that all projects with overlapping construction periods could pile on the same day, and without information to demonstrate that this is not possible, this constitutes an appropriately cautionary worst-case disturbance scenario for a single day. The Applicant acknowledges there are limitations to this approach, which are noted in the assessment, but

ID	NRW comment	Applicant response
		the magnitude does also consider the duration of effects. iPCoD modelling has also been undertaken for Project alone and for the identified cumulative projects, considering published piling schedules and the number of animals disturbed over the full piling duration for each project. Therefore piling disturbance over a three year installation period from multiple projects has been assessed. Thus, the consequences of piling for multiple projects over time are accounted for in the iPCoD modelling. This provides context that the worst case number of animals potentially disturbed from piling would not lead to a significant population decline. Additionally, a further qualitative assessment of repeat disturbances other than piling (which are not included in the iPCoD model) has been further detailed in the ES Chapter (REP4-011) and clarified in the ES chapter at Deadliine5. The Applicant acknowledges that NRW does not expect a reassessment and welcomes the advice and is open for different approaches to be considered in the assessments for future projects.

ID	NRW comment	Applicant response
REP4-074-72	**2.2.5. Marine Mammals Technical Note (EIA), - Revision 02 (Volume 9) (REP3-060 clean/ REP3-061 tracked) - 2.8 Cumulative effects from underwater noise from all noisy activities** While NRW (A) welcome the additional information provided by the Applicant which includes all construction activities, the assessment simply assumes the highly unrealistic scenario where all activities are assumed to occur at the same time (as per previous NRW (A) comments a simultaneous assessment as opposed to a cumulative assessment). Thus, conclusions made are of limited value being based on unrealistically and disproportionately high numbers for a single day of offshore construction. Ideally, such a cumulative assessment would assess the impacts across the lifetime of these projects, using a realistic schedule of the activities that might occur.	The Applicant has provided the following assessments in the ES and RIAA: - Quantitative and precautionary assessment of all noise activities occurring on the same time and consideration of the number of animals impacted at one time in relation to the reference population. - iPCoD modelling which considered the cumulative effect on the population of repeated piling events occurring over time, for the Project (the Project piling schedule) and other projects (full schedule of each project). - Qualitative analysis of repeated disturbance and cumulative stressor load. The additional granularity provided on the numbers of mammals that could be disturbed at any one time using a number of methods (EDRs DRC etc) in the Marine Mammal Technical Note 1 (EIA) (REP1-083) was requested by Natural England at Deadline 1. While the Applicant acknowledges the opinion of NRW, Section 2.8 of Technical Note 1 (EIA) (REP3-060) clarifies that the assessment represents a snapshot. It is emphasised that these activities are unlikely to occur simultaneously but will be temporally dispersed. Currently, beyond iPCoD modelling that has been undertaken for piling of seven projects over a three year

ID	NRW comment	Applicant response
		period, the Applicant is unaware of a further method to quantitatively calculate the cumulative effects over the lifetime of these projects to count for all noisy activities (this cannot be done in iPCoD), and no realistic detailed construction or operation and maintenance schedules are available at this stage. At Deadline 4, in line with Technical Note 1 (EIA) (REP3-060) and comments from NRW at Deadline 3, an expanded assessment was provided to consider in more detail repeated disturbances (Section 11.7.3.2, of ES Chapter Marine Mammals (REP4-011)) and impacts across the lifetime of the Project (Section 11.10.1 of ES Chapter Marine Mammals (REP4-011)). However, this has been further strengthened in the ES chapter and RIAA provided at Deadline 5, following discussion with NRW. It is more clearly stated as a snapshot where the number of animals disturbed is displayed.
REP4-074-73	**2.2.6. Marine Mammals Technical Note (EIA), - Revision 02 (Volume 9) (REP3-060 clean/ REP3-061 tracked) - 3.0 Updates and amendments to the Marine Mammal Assessment (Chapter 11 Marine Mammals (APP-048)) following NRW Written Representations (Key Issue 2)** The below comments also refer to NRW (A) Written Representations (REP1-099) and follow up discussions with the Applicant namely, WR-099-61 WR-099-65, WR099-66, WR-099-67, WR-099-69, WR-099-70, WR-099-76, WR-099-78.	The Applicant notes this information and address the residual concerns raised below in Section 2.2.6.1 but also responds on how original comments were taken into account.
REP4-074-74	NRW (A) welcome the provision of the updated marine mammals technical notes (EIA and HRA). However, in our view these do not sufficiently justify the approaches	The Applicant notes the limitations of quantitative ‘snapshot’ assessment of the

ID	NRW comment	Applicant response
	taken in the CEA and in combination assessment. It is essential to revise the assessment so that future projects using the Morecambe Offshore Windfarm ES application have access to accurate information.	worst-case number of animals disturbed at one time in the Cumulative Effects Assessment (CEA). While the number of animals is precautionary for the number of animals at any one time, it does not represent the number of animals potentially disturbed over the lifetime of the project. The iPCoD modelling is used for repeat piling events (i.e. 37 days) of the Project, and then cumulatively with a number of projects over the three year piling schedule and this considers population consequence of this impact over a 25 year period. Finally, a qualitative assessment is made, considering repeated disturbances, including those other than just piling, over the lifetime of the Project. The assessment is considered a suitable representation that other projects could use in their CEA, however wording has been added at Deadline 5 to further highlight where the number of animals at any one time is presented that this is a snapshot of number of animals disturbed at any one time.
REP4-074-75	In the original application, the Applicant adopted an approach to the CEA and incombination assessments, which, in our view, significantly underestimates the numbers disturbed and the significance of the effect:	Separate conclusions have been made for individual phases (Sections 11.6.3, 11.6.4 and 11.6.5 of ES Chapter Marine Mammals (REP4-011), but overall conclusions have been provided information in regard to the lifetime assessment that considers all phases has

ID	NRW comment	Applicant response
	a) For the project alone, separate assessments (and therefore separate conclusions of significance/adverse effect) were provided for the different phases of the project: construction vs operation and maintenance phase.	been presented in Section 11.10.1 of ES Chapter Marine Mammals (REP4-011).
REP4-074-76	b) The applicant screened out underwater noise from OWFs maintenance and decommissioning activities by arguing that the impact footprint from the construction phase will exceed that of the operational and decommissioning phases, thereby inclusion is unnecessary. However, whilst the construction phase has a larger impact footprint, this approach does not account for the additional, largely chronic, impact load of the operational and decommissioning phases of other projects. Therefore, there is a risk that the resulting CEA / incombination assessments are under precautionary.	Further acknowledgement around the impacts of repeated disturbance events considering operational and decommissioning activities of the Project and other projects has been presented in Section 11.7.3.2 of ES Chapter Marine Mammals (REP4-011)), and Section 9.8 in the RIAA (REP4-009) at Deadline 4. At Deadline 5 it is also more clearly stated how consideration of impact load cumulatively over all phases has been considered in overall conclusions.
REP4-074-77	c) Separate assessment conclusions were made for different impact pathways incombination. While the CEA /in-combination assessment evaluated the impact pathways for all screened in projects, it did not assess the total impact of all pathways for all projects collectively.	Similarly to the response above, a discussion on the 'Cumulative effect of repeated disturbance events' has been added to Section 11.7.3.2 of ES Chapter Marine Mammals (REP4-011)), and Section 9.8 in the RIAA (REP4-009) at Deadline 4. At Deadline 5, a further clarification of the total impacted pathways across projects has been added to the ES and RIAA.
REP4-074-78	d) Other than disturbance from piling noise (where multiple piling days across multiple projects within the same management unit was assessed and modelled), assessments were based on numbers disturbed by a single event of a given activity. As a result: I. The potential cumulative impact of repeated disturbance events on the same population over time was not captured or assessed, II. Statements that x% of an Management Unit (MU) population would be disturbed, and that the impact was	The Applicant notes the limitations of quantitative 'snapshot' assessment of the worst-case number of animals disturbed at one time in the CEA (Section 11.7.3.2 of ES Chapter Marine Mammals (REP4-011)) and the in-combination assessment

ID	NRW comment	Applicant response
	therefore small, were incorrect since the total over the project lifetime would be higher, III. Without expressly stating that numbers of animals disturbed were based on a snapshot at a single point in time, future projects using the Morecambe Offshore Windfarm Environmental Statement application would not have access to the correct numbers disturbed.	(RIAA (REP4-009)). The iPCoD modelling is used for repeat piling events which considered the piling schedule of the Project, and then cumulatively with a number of projects over time. Finally, consideration of repeated disturbances, including those other than just piling, over the lifetime of the Project is also made in overall assessment conclusion. The assessment is considered a suitable representation for use in other projects' CEA. However, it is noted that wording has been added at Deadline 5 to clarify that the number of animals presented at any one time is a snapshot of those disturbed at one instance.
REP4-074-79	e) With the exception of disturbance from piling noise assessments, the overall approach taken by the applicant was to present a worst-case scenario snapshot of animals that may be disturbed simultaneously at any given time by the project and other OWFs. In our view, this constitutes a simultaneous assessment rather than a cumulative one.	It is considered that repeated disturbances have been presented in Section 11.7.3.2, of ES Chapter Marine Mammals (REP4-011)), and Section 9.8 in the RIAA (REP4-009) at Deadline 4; and a further detailed lifetime assessment was provided in: • Marine Mammal Technical Note 1 (EIA) Rev 02 (REP3-060); • Marine Mammal Technical Note 2 (HRA) Rev 02 (REP3-063); • Section 11.10.1 of ES Chapter Marine Mammals (REP4-011); and

ID	NRW comment	Applicant response
		• Section 9.8 in the RIAA (REP4-009). The Applicant has provided the following assessments in the ES and RIAA: - Quantitative assessment of all noisy activities occurring on the same time and consideration of the number of animals impacted in relation to the reference population at one time. - iPCoD modelling which considered the effect on the population of repeated piling events over time, for both the Project alone and considering other projects - Qualitative analysis of repeated disturbance and cumulative stressor load. This assessment has been further strengthened following discussion with NRW(A), and the Applicant considers that the information provided at Deadline 5 (incorporated in the RIAA and ES) addresses NRW(A)'s residual concerns.
REP4-074-80	f) The applicant screened out activities based on piling overlap, assuming that there will be no days where, piling does not occur, but other activities do over the lifetime of the project. Additionally, they assumed all disturbed animals would be displaced from the area, ruling out the possibility that the impact radii for different pathways, and/or different projects, might overlap with the same population, potentially causing additive impacts	The Applicant screens in a large number of other plans and projects (including projects with construction activities other than piling could occur) and acknowledges the potential for additive effects. It is acknowledged that while activities such as piling can displace animals, reducing the likelihood of experiencing other noisy activities from the project, disturbance does not equate to full displacement and that disturbance

ID	NRW comment	Applicant response
		events could be occurring elsewhere across the management unit and CEA screening area from other projects. The Applicant at Deadline 5 has amended text to further acknowledge repeat disturbances events across the wider area (management unit/screening area) and the potential for a temporal spread of activities.
REP4-074-81	g) The conclusions on disturbance from vessel noise in paragraph 11.736 (APP048) were based on estimates of numbers of animals disturbed at a single point in time. This approach does not adequately capture the overall additional disturbance introduced by repeated disturbance events over the different project phases. Whilst disturbance from vessel noise is relatively short-lived, recovery from a single disturbance event does not imply that: I. There is no cost to the animal during the recovery process (e.g., loss of feeding opportunities or decreased energy stores). II. Repeated episodes of disturbance would not have an effect due to multiple vessel trips in the area.	At Deadline 3, the Applicant has provided additional information in the Marine Mammal Technical Note 1 (EIA) (REP3-060), which has now been added to Cumulative effect 4 in Section 11.7.3.2 of ES Chapter Marine Mammals (REP4-011)). The section discusses how vessels could affect marine mammals in the long-term and over all phases.
REP4-074-82	h) The applicant also screened out all aggregate extraction and dredging projects within the Celtic and Irish Seas Management Unit (CIS MU), arguing that the localised and short-to-medium term behavioural reactions justifies the omission. NRW(A) argues that the applicant may be overlooking individually smaller impact pathways, that despite limited scale, could increase the stressor load on the same MU population, potentially causing an additive effect.	In the ES, two aggregate/dredging projects, North Bristol Deep 1601 & 1602 have been screened in that could have potential cumulative disturbance impacts (see Appendix 11.4 Marine Mammal CEA Project Screening (REP4-019). This assessment can be found in Table 11.102 (ES Chapter Marine Mammals (REP4-011)). It is noted that aggregate and dredging activities are largely part of the baseline environment and as NRW note have a limited scale of effects.

ID	NRW comment	Applicant response
REP4-074-83	Overall, NRW (A)'s opinion is that the original CEA and in-combination assessments assessed the cumulative impact of piling noise from multiple projects, but did not adequately assess this for all other impact pathways, or the combined total impact of all projects from all impact pathways.	At Deadline 5, further evaluation, in way of a summary of the total impacted pathways across projects has been further added to the ES and RIAA. The acknowledges the combined total effects but justifies how this does not alter the assessment conclusions.
REP4-074-84	At Deadline 3, the Applicant provided further information and analysis in response to Natural England's (NE) and NRW (A)'s written representations within the updated EIA Technical Note 1 (Sections 2.0 and 3.0, respectively (REP3-060 clean/ REP3-061 tracked)). Overall NRW (A) do not agree with the approach taken in the CEA and in-combination assessment, and do not consider that the additional information submitted at Deadline 3 is sufficient to justify this approach. NRW (A) provide further detailed comments below, with references to the specific sections of the relevant reports.	The Applicant outlines below how residual concerns and comments have been addressed.
REP4-074-85	**2.2.6.1. Section 3.1.1 Additive effects (REP3-060 clean/ REP3-061 tracked)** As per our comments in Section 2.2.5 above, we welcome the additional information provided by the Applicant and inclusion of all construction activities. However, the assessment assumes the unrealistic scenario where all activities are assumed to occur simultaneously, as opposed to a cumulative assessment. Thus, the conclusions of limited value and validity as they are based on unrealistic and disproportionately high numbers for a single day of offshore construction. A cumulative assessment should assess the impacts across the entire project lifetime, using a realistic schedule of activities.	The Applicant acknowledges that there is a potential for disturbance events to arise from multiple activities over the lifetime of the Project. There may be a combination of multiple construction activities that could occur at the same time, sequentially, or indeed days where there is limited or no construction activity. It is noted that there is merit in highlighting that activities such as piling may cause animals to flee the impacted area, and thus they may not be impacted by other sources. However, the Applicant acknowledges not all animals may indeed
REP4-074-86	In Paragraph 128, the Applicant argues that the potential for spatially (additive) effects is minimal, as animals disturbed by louder, more significant noise (presumably piling noise) will have already vacated the area, thereby reducing the impact of subsequent, less intense activities. However, this argument appears to be fundamentally based on a number of inaccuracies / incorrect CEA methodology:	

ID	NRW comment	Applicant response
	a) Dose-response curve data from piling noise for harbour porpoise and harbour seal indicates that piling does not lead to a 100% displacement rate of animals within the ensonified area. Even if we assume that all responses observed were displacement (as opposed to, for example, cessation of vocalisation while the animal remained in the area), the assumption that “animals disturbed by louder more significant noise will have already vacated the area” is incorrect as there would still be a substantial number of animals in the area.	flee the area and cumulatively animals could then experience disturbance from another project. There also could be additive effects across the study area from multiple projects. The intention was to highlight why effects were not considered to be significantly worse when considering repeat disturbance over time, as opposed to the largest number of animals that could be impacted at any one time. The Applicant at Deadline 5 has amended text to acknowledge that 100% displacement may not occur and further considers repeat disturbances. It is noted that there is no change to the EIA or RIAA conclusions. The Applicant acknowledges not all animals may indeed flee the area, and certainly would not be displaced over the whole management area/screening area. Cumulatively, animals across the management unit/screening area may experience disturbance from multiple projects, however it is noted that not all impacts would spatially interact or impact on the same animal. The distance from the Project to other activities is relevant as it allows analysis of impact interactions as well as additive effects across the wider area. The Applicant at Deadline 5 has amended text to acknowledge repeat disturbances and additive effects across
REP4-074-87	b) A CEA /in-combination assessment is carried out at a population-level scale. Even assuming a 100% displacement rate, unless the area vacated is equivalent to the size of the management unit / screening area, the possibility of additive impacts from multiple projects cannot be ruled out.	
REP4-074-88	c) Given vessel availability and the varying stages of the consenting process across different projects, it is likely that while piling may be occurring in one or more projects, other non-piling activities would be taking place elsewhere. Furthermore, the number of piling days required for each project is finite, as it depends on the number of turbines. If projects are within the same MU and impact the same population, an additive effect has occurred and needs to be considered.	
REP4-074-89	The Applicant concludes that due to the intervals between activities, it is not anticipated that this would result in effects of greater significance than those from individual impacts considered in isolation but provides no evidence to underpin this claim.	

ID	NRW comment	Applicant response
		the wider area (management unit/screening area). The Applicant notes that non piling activities are considered. For example, in the quantitative assessment for how many animals could be disturbed at one time, construction activities alongside piling could be occurring and are included. The number of days of piling across cumulative projects over time is considered as part of the iPCoD modelling. In terms of all effects considered together it is noted that disturbance events would be intermittent across each phase of the Project and that behavioural effects are recoverable. It is acknowledged, as stated by NRW (A) below that energetic cost could be experienced by animals, and this could be experienced on repeat events, however the short term nature of each activity, and localised nature of some activities such as vessel disturbance, is also considered in the assessment and overall level of significance. The Applicant will further reduce the Project contribution to additive cumulative disturbance via its embedded commitment to develop, agree, and implement the MMMP (REP4-027) and UWSMS (REP4-049).

ID	NRW comment	Applicant response
REP4-074-90	**2.2.6.2. Section 3.1.3 Shipping (REP3-060 clean/ REP3-061 tracked)** NRW (A) confirms that no concerns were raised with regard to collision (paragraphs 156 – 159). We welcome the additional information provided by the applicant.	Noted, no further action required.
REP4-074-91	Our primary reason for raising written representations WR-099-70 and WR-099-78 was to ensure that the contribution of the transmission assets to the overall impact was not overlooked. The number of animals affected should be included into the overall assessment of any project, despite (as expected) being proportionally small. We caution against assuming that a proportionally small effect can be "rounded down" to zero effect, and screened out before the assessment, as the combined effect of multiple individually "negligible" or "minor" impacts is likely to be larger than "negligible" or "minor".	The Applicant notes that the magnitudes have been considered against the affected reference population for each species, based on the number of animals disturbed at a point in time from vessels at the Transmission Assets in conjunction with the Project, as listed in paragraph 164 in the Marine Mammal Technical Note 1 (EIA) (REP3-060). The Applicant notes an error in the conclusions outlined paragraph 167 of the Technical Note and paragraph 11.731 of ES Chapter 11 Marine Mammals (REP4-011). The overall conclusion for vessel disturbance during construction for the Transmission Assets and the Project should be minor adverse for all species. This conclusion is the same as for the Project-alone vessel disturbance effects because the total number of animals, as presented in paragraph 164 of the Marine Mammal Technical Note 1 (EIA) (REP3-060), and the respective percentage of the reference population have not changed significantly. The magnitudes remain the same as for the Project-alone, as the percentages are within the boundaries of
REP4-074-92	NRW(A) assumes that the estimated number of disturbed animals reflect a single point in time, rather than the total across the project lifetime. Estimates of numbers of animals disturbed at a single point in time do not adequately capture the overall additional disturbance introduced by repeated disturbance events over the different phases of the project. Therefore, we do not agree with the numbers proposed in paragraph 164, and the applicant's conclusions of "negligible" significance for the transmission assets.	
REP4-074-93	Whilst disturbance from vessel noise is relatively short lived, recovery from a single disturbance event does not imply that:	
REP4-074-94	There is no cost to the animal during the recovery process (e.g. loss of feeding opportunities / decreased energy stores).	
REP4-074-95	There would be no effect from repeated episodes of disturbance as a result of there being multiple vessel trips in the area.	
REP4-074-96	Harbour porpoise are known to respond to vessel noise by increasing swimming effort, making deeper dives, and ceasing echolocation and foraging for several minutes (Dyndo et al 2015; Wisniewska et al 2018) and potentially reducing their	

ID	NRW comment	Applicant response
	daily net energy gain (Rojano-Doñate et al 2023). Wisniewska et al (2018) further noted that "although these individuals lived in highly trafficked coastal waters, they did not seem to have habituated to vessel noise". Similar findings were made for other species by Pirotta et al (2013, 2015), Oakley et al (2017), Marley et al (2017a, 2017b). Within acoustically degraded habitats, it is also possible that animals need to make trade-offs between the benefits of remaining and taking advantage of important resources while tolerating disturbance, and the physiological and energetic costs of relocation (e.g. Hastie et al 2021; Findlay et al 2024).	negligible magnitude for all species except for the bottlenose dolphin, which was low. This assessment is based on the scenario of disturbance at a single point in time but then considers repeat disturbances from vessels. At Deadline 5, the reference to 'negligible effects' in relation to Transmission Assets has been amended in the ES, noting the significance for vessel effects was overall considered to be minor adverse. The number of animals identified as disturbed has also been clearly identified as a point in time value. In view of all phases, the type of vessel used in operation and maintenance activities will be similar to those employed during the construction phases of cumulative projects. The duration of vessel activity is considered to be long-term (throughout the operational and maintenance phase of the Project) and localised for each project; however, it should be noted that vessel movements will occur intermittently over the lifetime of the Project and across different project phases. The number of vessels present during the operations and maintenance phases of respective projects in isolation is considered to be smaller than for the construction phase. Nevertheless, cumulatively it would be expected that the
REP4-074-97	The Applicant does not provide justification for the statement that for vessel noise "across the project lifetime, the effects on marine mammal receptors are not anticipated to interact in such a way as to result in combined effects of greater significance than the assessments presented for each individual phase."	
REP4-074-98	The Applicant suggests that "vessel routes to and from offshore windfarms and other offshore projects will, for the majority of trips, use existing vessel routes for pre-existing vessel traffic which marine mammals will be accustomed to. They may also have become habituated to the volume of regular vessel movements and therefore the additional risk would predominantly be confined to the array area." Given the considerable amount of data required to justify a conclusion of "habituation" NRW (A) contend that this point is speculative. As noted above, it is likely that animals are making trade-offs between the benefits of remaining and taking advantage of important resources while tolerating disturbance, and the physiological and energetic costs of relocation (e.g. Hastie et al 2021; Findlay et al 2024).	

ID	NRW comment	Applicant response
		total number of vessel movements will exceed the existing average traffic levels. Although animals may be disturbed from isolated project areas at different points in time, in the context of the wider habitat available within the regional marine mammal study area, the scale of the disturbance effects (which would be localised) is considered to be small. Determining the behavioural responses from marine mammals from vessel presence and/or vessel noise is deemed very challenging (Erbe et al., 2019). Consequently, empirical data on long-term vessel disturbance data on (larger) vessels is lacking. Observations of short-term disturbance from small vessels was presented in the Marine Mammal Technical Note 1 (EIA) (REP3-060); additionally, Fernandez-Betelu et al. (2024) noted observations of noise-sensitive harbour porpoise, that was only briefly displaced and returned immediately (within hours) after the construction vessels left. Considering the available literature, and that vessel noise has become part of the baseline ambient noise (see references in Erbe et al., 2019), it was concluded that prolonged displacement of marine mammals over the lifetime of the projects is unlikely. While the Applicant acknowledges the comments from NRW(A) that marine

ID	NRW comment	Applicant response
		mammals may expend energetic costs during relocating to other areas of less disturbance, or tolerate disturbance, the Applicant highlights that vessel traffic is are already present in the region, and that the addition of vessels from the project and Transmission Assets will not cause a significant effect in EIA terms.
REP4-074-99	In paragraph 181, the applicant adopts a 100 km screening distance without providing a justification. This screening distance is smaller than the MU for most of the species scoped into the assessment; the purpose of the cumulative assessment being to assess the impacts of a given pathway on the MU population, individually and in conjunction with one another.	The projects assessed in Table 11.113 ES Chapter Marine Mammals (REP4-011) and Table 3.1 Marine Mammal Technical Note 1 (EIA) (REP3-060) are located in close proximity to the Project and therefore this could lead to higher levels of traffic within the Liverpool Bay region. Vessel movements and other activities will be largely confined to the array areas and/or offshore cable corridor and vessel routes are likely to follow existing shipping routes to and from port. The 100km captures all but Erebus and White Cross which are Teir 1 projects and corresponds to the area where effects could be most concentrated and could interact. The impact of these projects and the remaining Tier 2 projects in the wider Celtic Irish Sea (CIS) Management Unit (MU), that are greater than 100km away (such as Irish projects) are widely dispersed and predicted to be very localised to within the close vicinity of the respective projects' locations.

ID	NRW comment	Applicant response
		As per Table 11.114 in ES Chapter Marine Mammals (REP4-011), the distances to all but one operational offshore renewable energy project (Morlais) are between 287 and 546km away from the Project and also outside the grey seal, harbour seal and bottlenose dolphin screening area. These projects are due to be operational before construction at the Project and have not been captured as part of the baseline. Furthermore, there was no project-specific vessel data available for Flowatt Tidal, Saint-Brieuc, and Twin-Hub to undertake meaningful assessment. It was deemed unlikely that the marine mammal species would be affected by vessel disturbance across the wider management units/screening areas in such a way that it would significantly impact the relevant population as a whole (although it is acknowledged that animals could be disturbed across the MU). This justification has been included in the updated Chapter at Deadline 5.
REP4-074-100	Finally, the magnitude of disturbance in Section 3.1.3.2 appears to have been based on the number of vessel transfers as opposed to the number of animals disturbed.	To sum up the total number of animals disturbed, assuming that the maximum number of vessels would be on site for each screened project presents a highly unrealistic scenario. Therefore, the magnitude was not based on a quantitative approach, as done in Section 3.1.3.1 of Chapter Marine Mammals (REP4-011), because it was stated that this would give

ID	NRW comment	Applicant response
		an unreasonable estimate of (a) the total number of vessels and (b) the total number of animals disturbed at the same time. Instead, the magnitude was based on a qualitative approach, discussing the realistic likelihood of disturbance to marine mammals if, for all projects, the maximum number of vessels were on site at any one time and considering repeat disturbances over time. Although animals may be disturbed from isolated project areas at different points in time, in the context of the wider habitat available the scale of the disturbance effects (which would be localised) is considered to be not significant. The Applicant maintains the conclusion that this results in a minor adverse effect significance for all species, which is not significant in EIA terms, but further justification is provided in the ES chapter and RIAA for Deadline 5.
REP4-074-101	**2.2.6.3. Section 3.1.4 Cumulative effect of repeated disturbance events (REP3-060 clean/ REP3-061 tracked)** NRW(A) disagrees with the Applicant that the issues raised in our written representation's WR-099-61 (REP2-027) have been addressed. Our concerns remain, that the assessment conclusions were based on the number of animals disturbed by a single event of a given activity.	Quantifying repeated disturbances from all noise-producing activities over the 35-year Project lifetime presents significant challenges due to uncertainties in other project timelines, the potential for currently unknown future activities, and the limited understanding of long-term cumulative effects on marine mammals. Given these uncertainties, a precise measurement of repeated disturbances is not feasible.

ID	NRW comment	Applicant response
		However, assessments have been based on all current data and information available, using a precautionary approach and worst-case scenarios. The Applicant has provided the following assessments in the ES and RIAA: - Quantitative and precautionary assessment of all noise activities occurring on the same time and consideration of the number of animals impacted in relation to the reference population at one time. It has, at Deadline 5, been made clear in the assessments that this is a snapshot value. - iPCoD modelling which considered the effect on the population of repeated piling events over time, for both the Project alone and considering other projects. - Qualitative analysis of repeated disturbance and cumulative stressor load. This has, at Deadline 5, been further discussed and acknowledged in the assessment.
REP4-074-102	While we have no major concerns regarding certain sources that are either continuous but low level (e.g., operational turbine events), or rare (e.g., UXO detonation), we are concerned that for several particular noise sources carried out over consecutive days from a moving source, including geophysical surveys, other construction activities, vessel noise, the conclusions are based on the numbers disturbed at any one time.	The Applicant acknowledges NRW's concerns regarding the potential consequences of repeated disturbances to marine mammals, and has further acknowledged this at Deadline 5. However, it is noted that disturbance effects are not permanent or and are recoverable. Due to the absence of empirical data on long-term cumulative

ID	NRW comment	Applicant response
		effects, it is not possible to accurately quantify these impacts and a number of methods must be considered to analyse the effect. It is noted that the Applicant will reduce the Project contribution to additive cumulative disturbance via its embedded commitment to develop, agree, and implement the MMMP (REP4-027) and UWSMS (REP4-049).
REP4-074-103	This approach does not adequately capture the overall additional disturbance introduced by repeated disturbance events over the different project phases. While we acknowledge that disturbance from vessel noise is relatively short lived, the fact that an animal recovers sometime after a disturbance event, does not mean the event should no longer be counted as disturbance. If the intent is to calculate the number of animals disturbed, basing the assessment, either for the project alone and/or the CEA, on a snapshot estimate risks significant underestimation. This is particularly the case when making conclusions of magnitude based on statements that “x% of the MU population was disturbed” as the total numbers disturbed over the project lifetime would be higher.	The Applicant notes and acknowledge overall stressor load effects and have updated in Deadline 5 ES submission that this analysis has been considered and factored into the overall assessment conclusions. The Applicant will reduce the Project contribution to additive cumulative disturbance via its embedded commitment to develop, agree, and implement the MMMP (REP4-027) and UWSMS (REP4-049). Statements around the % of the population disturbed in point in time assessments have also been appropriately caveated in the Deadline 5 submission.
REP4-074-104	NRW (A) are concerned that there is a risk that impact pathways, which consist of chronic disturbance events but have an individually relatively small effect, are being overlooked due to short-lived nature of individual disturbance events. We advise that it is important to consider the overall additional stressor load introduced when making a conclusion on the magnitude of an impact pathway.	The Applicant notes and acknowledge overall stressor load and have updated in Deadline 5 ES submission that this analysis has been considered and factored into the overall assessment conclusions. The Applicant will further reduce the Project contribution to additive cumulative disturbance via its embedded

ID	NRW comment	Applicant response
		commitment to develop, agree, and implement the MMMP (REP4-027) and UWSMS (REP4-049).
REP4-074-105	We highlight that the latest version of the DEPONS model for simulating population effects of noise for harbour porpoises (V3.0) now makes it possible to simulate the population impact of noise from ships through the SATURN and work ongoing (e.g. Schnitzler et. al., 2024). Additionally, work to develop the Dynamic Energy Budget (DEB) models for their eventual inclusion into the iPCoD framework is ongoing (Harwood et al 2022). As per NRW's written representation WR-099-68 (REP2-027), and as acknowledged by the Applicant in their responses, King et al. (2015) also suggested that other impact pathways, such as noise from seismic surveys and/or vessels, can be included into iPCoD by estimating the number of animals disturbed by these activities and the duration and spatial extent.	For the time being, Sinclair *et al.* (2019) noted that the while other noise-generating activities, including seismic surveys, could conceptually be included in a future iPCoD method (yet to be developed and validated by the scientific community), relevant parameters and an expert elicitation process specific to the effects of seismic noise or vessel noise on marine mammals would be required. It is advised not to edit the code underpinning the model as changes could affect the integrity of the model or its functionality. The Applicant acknowledges NRW(A)'s comment and, for future projects, will look into the integration of vessels and seismic surveys in the modelling, once more guidance on the application is provided by the code developer. The application of the DEPONS model is currently limited to the Inner Danish Waters and the North Sea. This limitation arises because the population dynamics and biological background parameters are specific to these regions, the model can only be extrapolated to areas outside the North Sea if there are empirical data available for re-calibrating the movement patterns. Therefore, the current
REP4-074-106	While, as per prior submissions and discussions with Applicant, the suggestion in King et al. (2015) was chiefly conceptual in nature, suggesting that iPCoD could model population effects from other sources given adequate parameterisation. The key takeaway is that the scientific community already recognises that for repeated noise events, where the effect may be individually small (e.g., passage of one vessel), it is plausible that the cumulative impact may be greater than the impact from a single disturbance event.	

ID	NRW comment	Applicant response
		parameters are not transferable to the Irish Sea. The Applicant agrees it is plausible that the cumulative impact may be greater than the impact from one event, through the precaution built into the available assessment methods, iPCoD modelling results, consideration of the duration of and scale of activities, and qualitative assessment of repeat disturbance no elevated levels of significance have been identified in EIA terms. It may be that further developments within the field will improve quantitative assessment methods, including modelling approaches over time. In the absence of other quantitative approaches that are appropriately developed for EIA and HRA purposes at the present time, the Applicant's approach is considered suitable.
REP4-074-107	Although methods to quantify the effects of repeated disturbance events are still developing, this does not mean that total numbers disturbed from repeated events should not be considered on a qualitative basis when determining the magnitude of an impact. It is not sufficient to argue, as the Applicant has done here, that an impact is "reversible / recoverable" or "short lived / temporary", as in the process of recovering from the disturbance event and returning to its previous state the animal may have incurred some cost.	The Applicant acknowledges this point made by NRW(A) and has, at Deadline 5, amended information by adding further discussion on the repetitive nature of these activities and how they might affect marine mammals, for example, with regard to energetic costs. The Applicant notes however that with regard to the definitions of magnitude (as per Table 11.10 of ES Chapter Marine Mammals (REP4-011)), the duration of effects is

ID	NRW comment	Applicant response
		considered and disturbance is not permanent.
REP4-074-108	**2.2.6.4. Section 3.1.6. Residual PTS (REP3-060 clean/ REP3-061 tracked)** In our written representation, NRW (A) argued that permanent threshold shift (PTS) should not be screened out of the CEA, as the Applicant's approach relied on post-consent mitigation, which we consider to be insufficient to rule out any residual impacts. We refer the Applicant to the recent publication of DEFRAs Marine Noise Policy for further guidance.	In submission of ES Chapter 11 Marine Mammals (REP4-011) at Deadline 4, the risk of PTS has been screened into the CEA as Cumulative effect 1 in Section 11.7.3.2. The Applicant is aware of the latest marine noise policies, to which the Project has responded with a commitment to use NAS in the case of using worst-case Project design, and commitment to mitigate PTS.
REP4-074-109	**2.2.6.5. Section 3.1.7. Additional impact load: operation and decommissioning (REP3-060 clean/ REP3-061 tracked)** While NRW (A) does not dispute the conclusions regarding the individual pathways assessed here, our concerns in WR-099-76 and WR-099-77 (REP2-027) focused on the added stressor load introduced in addition to the construction phase. The Applicant has assessed the individual pathways for the operation and decommissioning phases and compared them to the construction phase but has not looked into the cumulative stressor load on the MU population from the presence of a long-term project.	The Applicant has considered the potential effects that may arise during the lifetime of the project. This includes consideration of operation and maintenance or other projects, as well as the decommissioning effects of other projects including oil and gas assets (see Section 11.7.3.2, of ES Chapter Marine Mammals (REP4-011)). Due to the lack of empirical data on decommissioning activities for wind farms, current knowledge suggests that disturbances are localised and similar to those experienced during construction, excluding piling activities (which are the greatest single source of disturbance). At Deadline 5, further evaluation, in way of a summary of the total impacted pathways

ID	NRW comment	Applicant response
		across Project lifetime has been added to the ES and RIAA. However, it is not within the Applicant's purview to predict unknown plans and projects that may arise over the timeline of the Project or assess their potential impact on the marine mammal population where there is no information in the public domain. As detailed in Section 3.1.7 in the Technical Note (EIA) (REP3-060), the Applicant has addressed all foreseeable activities and projects that may occur during the Project's construction phase (where the greatest noisy activities occur) and has identified effects over the lifetime of the project, with additive disturbance effects considered for both Project-alone and cumulatively with other plans and projects in Section 11.10.1 of the ES Chapter Marine Mammals (REP4-011). Further acknowledgement of cumulative stressor loads has also been included in the ES and RIAA at Deadline 5, and used in the overall assessment conclusions and establishment of mitigation.
REP4-074-110	**2.2.7. Marine Mammal Technical Note 2 (HRA), - Revision 02 (Volume 9) (REP3-062 clean/ REP3-063) - Section 3.1 Additional information to the in-combination assessment (Key Issue 2)** While we welcome the additional information provided, we do not fully agree with Paragraph 79 of the Marine Mammals Technical Note (HRA) Please refer to our response for Sections 2.2.6, and 2.2.5 of the Marine Mammals Technical Note (EIA) above in the relevant sections.	See Applicant's response in Section above 2.2.5 and 2.2.6. It is noted that the CEA in the ES Chapter Marine Mammals (REP4-011) and the in-combination assessments (RIAA (REP4-009)) are based on the same information, and details have not been repeated in full

ID	NRW comment	Applicant response
		in the RIAA, with reference made to the ES assessment as appropriate. However, the ES and RIAA consider the relevant Management Unit/ Special Area of Conservation (SAC) population where applicable. Updates made to the ES and RIAA at Deadline 4, and further at Deadline 5, are considered to address NRW concerns and provide sufficient evidence for NRW to agree with the conclusions of the assessment, also noting the secured mitigations.
REP4-074-111	**2.3. Additional Comments** WR-099-51: At Deadline 3, NRW(A) advised again that mitigation methods recommended via the Offshore Renewables Joint Industry Programme's (ORJIP) Range dependent nature of impulsive noise (RaDIN) project is included as a mitigation option within the final Under Water Sound Management Strategy (UWSMS) and Marine Mammals Management Plan (MMMP). As of Deadline 3, the UWSMS and MMMP have not been updated to include or acknowledge this mitigation option.	As per the UWSMS (REP4-049) submitted at Deadline 4, the Applicant noted that all available guidance in the final development of the UWSMS will be taken into account. The strike rate profile will be reviewed post consent based on the final project design. Specific reference to RaDIN has been added to the UWSMS for further comfort for Deadline 5.
REP4-074-112	**WR-099-52:** At Deadline 3 NRW (A) commented: "NRW (A) acknowledge and welcome the changes made to the chapter in the Vessel Traffic Management Plan (VTMP) (APP-153). We seek confirmation that these measures essentially match those in the WiSe scheme." No further revisions to Section 7.1 of the updated VTMP suggest updates to confirm that the measures are essentially the same as those in the WiSE Scheme.	The Applicant notes the measures are considered to align as appropriate with the WiSe scheme, given this scheme is developed to minimise unintentional disturbance, and collaborates with Sea Watch Foundation in the UK, and measures outlined by the Sea Watch Foundation are included in the Vessel Traffic Management Plan (VTMP).
REP4-074-113	**WR-099-57:** In NRW (A)'s written representations, we raised concerns about potential over-reliance on Accoustic Deterrent Devices (ADD's) to reduce auditory	Within the UWSMS submitted at Deadline 5 it is confirmed that ADD use would not

ID	NRW comment	Applicant response
	injury (PTS), our concern being that in an effort to mitigate for and prevent PTS incidents, there is a risk that ADDs may be used at too powerful a setting to ensure that the area is cleared – potentially effectively shifting the impact pathway to disturbance via strong behavioural and physiological responses at ranges of several kilometres.	exceed the recommended duration of use. If the worst case scenario were to be realised NAS would be used to achieve this (and commitment within the UWSMS is made in this regard). In other scenarios, design refinement and or noise reduction methods would be applied as required, and ensure no over reliance on ADDs. At Deadline 5, the Applicant has submitted an appendix to the UWSMS, which includes noise modelling with a 10 decibel (dB) noise reduction using NAS. This appendix also features revised ADD durations based on the NAS-modelling, followed by a literature review on the effectiveness of various NAS techniques.
REP4-074-114	In response to this, the Applicant recognised this risk and stated that the duration and potential effect of the use of the ADD will be further considered postconsent in the final UWSMS, MMMP and European Protected Species (EPS) licence with consultation based on the most up to date available information.	
REP4-074-115	However, NRW (A) note that as of Deadline 3, no revisions to the MMMP or UWSMS have been made to state that that they “will consider carefully the ADD duration to balance the risk of injury with any potential further disturbance from the ADD itself to ensure a proportionate and judicious application.”	
REP4-074-116	**WR-099-59:** At Deadline 3, NRW(A) responded that our query had not been addressed in relation to quantification of impacts from vessel noise. NRW (A) advised that the Applicant clarify whether the method used assumed that: (1) disturbed animals will leave the area; and/or (2) no new animals will be disturbed (or repeatedly disturbed) other than those within the 285.4 km2 area. As of Deadline 4 this query is pending.	This response has been submitted at Deadline 4 (REP4-058). In response to the question, the quantitative assessment assumed that all animals within a 4km radius are disturbed to calculate the impacted area (i.e the 285.4km^2 area). The Applicant presumes, as a worst-case the total (100%) displacement of marine mammals within a 4km radius at any one time, but does not preclude repeat disturbances when considering overall effects. As outlined in the previous response to WR-099-59 (REP2-027), this is considered

ID	NRW comment	Applicant response
		precautionary, as in the study by Benhemma-Le Gall *et al*. (2021), the decline in harbour porpoise responses 'halted' before the 4km. The Applicant acknowledges the suggestion to use the data as a dose-response function, however it is not considered that this assessment (which would be designed to reduce over conservatism) is required to be undertaken for this DCO Application given that sufficient information has been presented to conclude no significant effects and that mitigation is secured in the VTMP (REP3-047) to reduce disturbance effects from vessels. With regard to repeated disturbance, the effect of repeated cumulative vessel disturbance has been discussed further in Section 3.1.3.2 in the Marine Mammal Technical Note 1 (EIA) Rev 02 (REP3-060). This qualitative assessment also looked at disturbance from vessels from other offshore projects in the area, which could be considered to cause repeated disturbance event, the conclusion was not significant in EIA terms. This has been added to the ES chapter submitted at Deadline 4 and does not make the assumption that a 4km disturbance area would preclude repeat disturbances as this value was only used to calculate the worst-case number of animals impacted

ID	NRW comment	Applicant response
		by one vessel at any one time for the Project alone.
REP4-074-117	**WR-099-66:** NRW (A) commented that separate cumulative assessments have been provided for each of the different impact pathways, with individual cumulative assessment conclusions for each. The impacts of these separate assessments do not appear to have been summed/considered in the same model, thus the impact of multiple pathways of disturbance on the same populations has not been captured. While effects of these impacts acting in concert may not necessarily be additive, no justification has been provided to support this assumption. The Applicant has partly addressed this issue in separate sections of their Deadline 3 submission. Please refer to our response above to Section 2.8 and 3.1.1 of the updated Technical Note in the Sections 2.2.62.2.5 and 2.2.6.	At Deadline 5, further evaluation, in way of a summary of the total impacted pathways across projects has been clarified in the ES and RIAA.
REP4-074-118	**WR-099-67:** NRW (A) noted that in paragraph 11.796 (APP-048) the Applicant has screened out any activities based on piling overlap. This appears to assume that there will be no days where, for instance, piling does not occur, but other activities do. It further assumes that all animals disturbed will be displaced from the area, ruling out the possibility that impact radii for different pathways may overlap, with potentially additive impacts. As of deadline 4, this issue has not been addressed directly in the updated Technical Note.	The Applicant has screened projects that will be operational or constructing (or decommissioning) during the Project construction window. Projects that had a schedule for construction within the Projects construction window have been included in the worst case quantitative assessment for the relevant activity. The Applicant agrees that within, for example, a 26km piling effect radius, not all animals would be uniformly displaced; rather, only a fraction of the affected animals would be displaced. While some animals would flee, others might remain in the area of effect from piling but could additionally (or again) be disturbed by other noise sources. The Applicant acknowledges the potential for additive effects and notes that while activities such as piling can disturb and displace animals, reducing their exposure

ID	NRW comment	Applicant response
		to other noisy activities from the Project, disturbance does not equate to full displacement. Disturbance events could also be occurring elsewhere across the management unit and CEA screening area. The effects of these repeated and additive disturbances that could be ongoing during the lifetime of the Project were provided in Section 3.1.1 and 3.1.4. in the Marine Mammal Technical Note 1 (EIA) (REP3-060) (which was incorporated into the ES chapter at Deadline 4 (ref)) and in Section 9.8 in the RIAA (REP4-009). The Applicant at Deadline 5 has further amended text in the RIAA and ES to further acknowledge repeat disturbances events across the wider area (management unit/screening area).
REP4-074-119	**WR-099-70:** Please refer to our response above in the Section 2.2.6	See Applicant's response in Section 2.2.6
REP4-074-120	**WR-099-72:** The Applicant has provided additional information in Section 3.1.2 of the updated Technical Note. We consider this issue closed.	The Applicant welcomes this response.
REP4-074-121	**WR-099-75:** NRW (A) note that the Applicant has incorporated an assessment on PTS from other OWF projects into the cumulative disturbance assessment using iPCoD in Marine Mammals Technical Note (EIA) - Revision 02 (Volume 9) (REP3-060 clean/ REP3-061 tracked) Section 2.6.2. While the outputs of this assessment are welcomed and help inform the assessment considerably, NRW(A) notes that NRW (2023) recommends that when assessing auditory injury (PTS), the numbers injured should be assessed independently of disturbance. We can confirm that no further amendments are required and consider this issue closed.	The Applicant welcomes this response.

ID	NRW comment	Applicant response
REP4-074-122	**WR-099-76**: The Applicant has provided additional information in Marine Mammals Technical Note (EIA) - Revision 02 (Volume 9) (REP3-060 clean/ REP3- 061 tracked) Section 3.1.7. Please refer to our response above in the Section 2.2.6.	See Applicant's response in Section 2.2.6.
REP4-074-123	**WR-099-78:** The Applicant has provided additional information in Marine Mammals Technical Note (EIA) - Revision 02 (Volume 9) (REP3-060 clean/ REP3- 061 tracked) Section 3.1.3. Please refer to our response above in the Section 2.2.6.	See Applicant's response in Section 2.2.6.
REP4-074-124	**WR-099-82:** While NRW (A) welcome the additional information provided, we do not fully agree with Marine Mammal Technical Note 2 (HRA) - Revision 02 (Volume 9) (REP3-062: clean/ REP3-062 tracked) paragraph 79. Please refer to our response for sections 3.0, and 2.8 of the Marine Mammals Technical Note (EIA) above in Sections 2.2.62.2.5 and 2.2.6.	See Applicant's response in Section above 2.2.5 and 2.2.6). It is noted that the CEA and in-combination assessments are made on the same basis and information has not been repeated in full in the RIAA, with reference made to the ES assessment as appropriate. However, the ES and RIAA consider the relevant Management Unit/ SAC population where relevant. Updates made to the ES and RIAA at Deadline 4, and further at Deadline 5 have been made to address NRW concerns and provide sufficient evidence for NRW to agree with the conclusions of the assessment (also noting the mitigations secured by the Project).
REP4-074-125	**2.4. In Principle Monitoring Plan - Revision 02 (Volume 6) (REP3-045 clean/ REP3-046-tracked) - Table 2.3** NRW(A) welcomes the monitoring options proposed by The Applicant in Table 2.3. We can confirm that there are no issues with the options proposed, and that as per our previous responses NRW (A) may be able to agree that no monitoring may be required from a consenting perspective, however any additional data collection carried out by the applicant would be welcome.	The Applicant welcomes this response.

2.5 Bodorgan Marine Ltd (REP4-068)

10. At Deadline 4, Bodorgan Marine Limited (BML) submitted its post-hearing submissions including written submissions of oral cases (REP4-068).

11. The Applicant notes that BML's submission largely restates the arguments made in its Deadline 3 submission (REP3-098) and that throughout this further submission it directly repeats text submitted in respect of the Morgan and Mona projects (including incorrectly referencing the Applicant as being the "same Applicant as for the Mona OFW" at page 8, which is not correct).

12. The Applicant has not responded to BML's Deadline 4 submission in detail, as it considers that its position has been set out in:

    - The Applicant's Comments on Deadline 3 Submissions by Interested Parties (REP4-058) at section 2.5 (pgs. 130-135)
    - Written Summary of the Applicant's Oral Submissions - Issue Specific Hearings 2, 3 and 4 (REP4-059) at ISH3 ID 7 (pgs. 49-51)

13. The Applicant would also refer to its response to ExQs2 (9.60 The Applicant's Response to ExA Written Questions 2) submitted at Deadline 5, specifically question 2CF2 and the associated Appendix providing confirmation from The Crown Estate that it has no power to lease the seabed for aquaculture beyond 12nm.

2.6 Eversheds Sutherland on behalf of Spirit Energy (REP4-069)

14. The Applicant has provided an update on the position as it stands with Spirit Energy (and Harbour Energy) at Deadline 5 within The Applicant's Response to Spirit Energy's Deadline 4 Submission (Document Reference 9.59) and the following appendices:

- Appendix A: Helicopter Aviation (Document Reference 9.59.1)
- Appendix B: Effect of Proposed Morecambe Offshore Windfarm on Offshore Oil and Gas Operations Rev 02 (Document Reference 9.59.2)
- Appendix C: Morecambe Offshore Windfarm / Morecambe Net Zero Interactions Report (Document Reference 9.59.3)
- Appendix D: Shipping and Navigation (Document Reference 9.59.4)
- Appendix E: Impact on Decommissioning of Gas Production Facilities (Document Reference 9.59.5)
- Appendix F: Third Party Review of Safety Case Services Limited by ERM (Document Reference 9.59.6)
- Appendix G: Third Party Review of Safety Case by CityPort Oil & Gas (Document Reference 9.59.7).

2.7 Harbour Energy (REP4-071)

Table 2.9 The Applicant's comments on Harbour Energy's comments on the Applicant's Deadline 4 submissions (REP4-071)

ID	Deadline 4 comment	Applicant response (if required)
REP4-071-01	Consistent with the Joint Statement by Harbour Energy and Spirit Energy submitted at DL3 (REP3-101), Harbour Energy is continuing to engage with Spirit Energy and the Applicant concerning protective provisions. Unfortunately, sufficient progress has not yet been made for any update at DL4 to be made by the Applicant that reflects Harbour Energy's position. Harbour Energy will continue to work with the Applicant to seek common ground on protective provisions.	The Applicant has provided an update on the position as it stands with Spirit Energy (and Harbour Energy) at Deadline 5 within The Applicant's Response to Spirit Energy's Deadline 4 Submission (Document Reference 9.59) and the following appendices: ▪ Appendix A: Helicopter Aviation (Document Reference 9.59.1) ▪ Appendix B: Effect of Proposed Morecambe Offshore Windfarm on Offshore Oil and Gas Operations Rev 02 (Document Reference 9.59.2) ▪ Appendix C: Morecambe Offshore Windfarm / Morecambe Net Zero Interactions Report (Document Reference 9.59.3) ▪ Appendix D: Shipping and Navigation (Document Reference 9.59.4) ▪ Appendix E: Impact on Decommissioning of Gas Production Facilities (Document Reference 9.59.5) ▪ Appendix F: Third Party Review of Safety Case Services Limited by ERM (Document Reference 9.59.6) ▪ Appendix G: Third Party Review of Safety Case by CityPort Oil & Gas (Document Reference 9.59.7).

2.8 Ørsted (REP4-075 – REP4-077)

15. The Ørsted IPs submitted the following submissions at Deadline 4:

- Comments on any other submissions received at Deadline 3 (REP4-075)
- Post-hearing submissions including written submissions of oral cases (REP4-076)
- Post-hearing submissions including written submissions of oral cases – Response to action point 23 (REP4-077)

16. The Applicant does not seek to repeat positions set out within previous submissions and during Issue Specific Hearing 3. Accordingly, the submissions by the Ørsted IPs at Deadline 4 have not been fully copied into this document or responded to on a point-by-point basis (although direct comments on new points are provided below). As the Applicant stated at Issue Specific Hearing 3, it anticipates that the parties will remain in disagreement on these matters. The Applicant notes that this is consistent with all other offshore wind projects that are at examination, where there remains a fundamental disagreement between existing and proposed projects. In the Applicant's view the core of this disagreement is whether pre-existing projects should receive compensation from proposed projects. This points to the need for a holistic and consistent approach, decided by Government together with all industry stakeholders, rather than different positions taken in respect of individual examinations. As such the Applicant does not consider it would be appropriate to enter into discussions on a commercial side agreement with the Ørsted IPs on these matters.

17. In summary, the Applicant's position (which it set out at Issue Specific Hearing 3) is:

- The proposed development is not "close" to the Ørsted IPs' projects in terms of NPS EN-3 paragraph 2.8.197 and, accordingly, a bespoke wake assessment is not required. The Applicant's reasons for this are based on the natural interpretation of the word "close" which is supported by:
  - the approach taken by The Crown Estate (TCE) to the Round 4 leasing round, which established a 7.5km buffer;
  - the findings of the Frazer Nash report; and
  - the fact that the only example of a wake condition is Awel y Mor (which was closer than 7.5km, being located 5.1km from the affected Rhyl Flats wind farm.
- The distances between the Ørsted IPs' projects and the proposed development are set out in Table 17.10 of Chapter 17 Infrastructure and Other Users (REP1-038), with the nearest Ørsted IP projects being the

West of Duddon Sands project (12.9km) and Walney 4 (18.8km). The remaining projects are all upwards of 20km away.

- If the ExA considered that the Ørsted IPs' projects were close, such that assessments were to be required, the Applicant considers that such an assessment has already been submitted into examination (the Wood Thilsted report submitted by the Ørsted IPs (REP3-112)). The Applicant does not consider that any assessment it might carry out would be significantly different to that produced by the Ørsted IPs, noting that the Wood Thilsted report is precautionary and is not based on the final project design. Moreover, the Applicant considers that the Wood Thilsted report suggests very low project-alone numbers, with all of the Ørsted IPs' projects having impacts of under 1% save for two projects that are just above 1% (all of which are considered to be within the margins of error for such an assessment). In terms of EIA, the Applicant updated its Greenhouse Gas Assessment at Deadline 4 to reflect the Ørsted IPs' assessment (REP4-062), and so there can be no doubt that the Applicant has submitted a full and complete Environmental Statement.
- Importantly, if any additional assessment by the Applicant was considered by the ExA to be required, it is unclear what purpose it would serve because:
    - in light of the Applicant's updated Greenhouse Gas Assessment, the Applicant considers that the effect of this inclusion does not affect its conclusions, or the significant net carbon benefits of the Project; and
    - there is limited practical mitigation available for wake losses once a site boundary has been identified, as the impact is a function of the scale and distance of a project. The only proven way to mitigate wake impacts is to increase the separation distance – repositioning of turbines within the array area would have no material or meaningful effect on any predicted losses. Furthermore, layout must be considered holistically with other constraints and requirements secured by the draft DCO and expected by guidance, such as buffers around existing infrastructure within the site and minimum spacing distances required under MGN654.
- The NPSs recognise that residual impacts on other offshore infrastructure can remain and be considered acceptable. EN-3 (para. 2.8.345) states that the Secretary of State should be satisfied that site selection and design have evolved to "avoid" or "minimise" economic loss. Paragraph 2.8.348 then goes on to note that mitigation measures "may be possible to negate or reduce effects on other offshore infrastructure or operations to a level sufficient to enable the Secretary of State to grant consent". It is therefore recognised in policy that there

may be a residual impact on other offshore infrastructure, and that siting and design is the appropriate response.

- The NPSs do not require compensation or indemnification of all theoretical economic losses attributable to increased congestion and co-existence of the marine environment. This is consistent with the requirement in the Awel y Mor DCO which did not provide for compensation. Without the possibility of mitigation, it is clear that the Ørsted IPs are ultimately seeking compensation. This was made clear in the Ørsted IPs' Responses to the First Written Questions of the ExA (REP3-109) at questions 1OOI4 and 1OOI5(a). As stated above, if the Government determined this was the appropriate approach, it would need a decision applicable to all offshore wind farms and a new and clear policy.

18. The Applicant considers that its case is unchanged following the latest submissions from the Ørsted IPs at Deadline 4.

19. Regarding the Ørsted IPs' Deadline 4 submissions, the Applicant would make the following points:

- As noted above, the Applicant submitted a Greenhouse Gas Assessment Technical Note at Deadline 4 (REP4-062) which sets out the net Greenhouse Gas (GHG) emissions for the Ørsted IPs' assets on a "business as usual" (i.e. earliest expected decommissioning date) and an "extended" (i.e. an additional 10 years) basis. This has not affected the conclusions of its assessment on the significant net carbon benefits of the Project.
- The Applicant maintains, as set out in previous submissions and as set out in its response to ExQ2 (Document Reference 9.60) submitted at Deadline 5 (specifically question 2OOI2), that the Ørsted IPs are premature in suggesting that their projects should be taken as extended based on their statements to this (and other) Examinations. Given that it is agreed by all there are at least some additional consents required for an extension (e.g. new maintenance marine licences), the Applicant remains of the view that it has taken an appropriate approach by basing the Application on the published Environmental Statements for the Ørsted IPs' projects. Existing projects which are subject to an extension of life will be treated as part of the baseline once that extension (including its length) is known and settled and the necessary consents are in place. A wholly unilateral approach would also cut across the purpose of environmental impact assessment and would mean that the Ørsted IPs were no longer carrying out the development "in accordance with the details contained in the company's application". See also response to ExQ 2OOI2.

- The Applicant notes that the Ørsted IPs have submitted, by way of an example, the section 36 consent for the Green Volt Floating Offshore Windfarm to demonstrate that "if it was intended for the Orsted IPs' section 36 consents to be subject to an operational time limit, that would be expressly stated" (para. 1.15 of their Response to action point 23 (REP4-077)). This is an illustration of the standard approach that a decision and consent is needed to extend the life of a windfarm beyond that assessed in the Environmental Statement. The Green Volt Section 36 Consent comes from a different jurisdiction and is more recent so the drafting approach is different and refined. But it's unclear why this consent is evidence that the Ørsted IPs are unilaterally entitled to determine an extension of life – indeed, it suggests quite the opposite. This matter does not need to be settled in this Examination, but until it is settled the appropriate approach is to base the Assessment of new projects on the current position (the existing ES).
- In addition, the Applicant notes that the Ørsted IPs are interpreting "future viability" as including decisions on lifetime extensions (regardless of whether or not such decisions need further authorisation or consents). The suggestion is that a material increase of wake impact "could be sufficient to make operations uneconomic" with aged assets being more susceptible as "post 25 years, the economic margins for the assets become narrower" (para. 3.10 of Comments on any other submissions received at Deadline 3 (REP4-075)). The Applicant does not consider that 'future viability' extends to future decisions about lifetime extensions, as these were not envisaged as part of the original consent applications or assessments. Moreover, many of the Ørsted IPs' projects, particularly West of Duddon Sands and Barrow (the only two projects with a purported impact greater than 1%) are funded through previous Government funding mechanisms (Renewables Obligation Certificates) rather than the current Contracts for Difference funding mechanism. Narrowing economic margins, and impacts to a financial bottom line, are not matters for the planning system – these are risks that any business owner or operator must navigate.
- The Ørsted IPs have referenced representations made to TCE as part of the Round 4 bidding process and have referred to the Site Characterisation Report as confirming that "significant mitigation" would be required (Post-hearing submissions including written submissions of oral cases (REP4-076) at para. 3.7). The Applicant notes that the Site Characterisation Report was based on a 5km buffer:

  > *"The cumulative impact of OWF developments and associated cable infrastructure will need to be considered in this area as there may be concerns around wind resource and proximity to existing sites. There will need to be a 5 km buffer around existing*

offshore wind projects – any new wind developments within 5 km will need the permission of the incumbent party."

- Following the Site Characterisation Report, the Applicant notes that the buffer zone was increased to 7.5km across the Leasing Round. The Applicant considers that this was done in large part to account for the "significant mitigation" that might have been required. The Applicant also considers that the appropriate point for the Ørsted IPs to challenge any appropriate buffer zone was following the Round 4 process.

3 References

Benhemma-Le Gall, A., Graham, I.M., Merchant, N.D. and Thompson, P.M. (2021). Broad-Scale Responses of Harbor Porpoises to Pile-Driving and Vessel Activities During Offshore Windfarm Construction. Front. Mar. Sci. 8:664724.

Sinclair, R., Booth, C., Harwood, J. & Sparling, C. (2019). Helpfile for the interim PCoD v5 model. March 2019.

Appendix A MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS Annex 6.1 to the Applicant's response to Written Representations from MMO at Deadline 3: Cod spawning period

Partners in UK offshore wind

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

Annex 6.1 to the Applicant's response to Written Representations from MMO at Deadline 3: Cod spawning period

Deadline: 4

Application Reference: EN010136

Document Number: MRCNS-J3312-JVW-10205

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10 December 2024

F01

Image of an offshore wind farm

www.morganandmona.com/morgan

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
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Prepared by:

Morgan Offshore Wind Limited.

Prepared for:

Morgan Offshore Wind Limited.

Contents

Figures

Glossary

Term	Meaning
Applicant	Morgan Offshore Wind Limited.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP).
Morgan Array Area	The area within which the wind turbines, foundations, inter-array cables, interconnector cables, scour protection, cable protection and offshore substation platforms (OSPs) forming part of the Morgan Offshore Wind Project: Generation Assets will be located.
Morgan Offshore Wind Project: Generation Assets	This is the name given to the Morgan Generation Assets project as a whole (includes all infrastructure and activities associated with the project construction, operations and maintenance, and decommissioning).
The Planning Inspectorate	The agency responsible for operating the planning process for applications for development consent under the Planning Act 2008.

Acronyms

Acronym	Description
MMO	Marine Management Organisation
TTS	Temporary Threshold Shift
UWN	Underwater Noise
WR	Written Representations

Units

Unit	Description
SELcum	Cumulative Sound Exposure Level

1 ANNEX 6.1 TO THE APPLICANT'S RESPONSE TO WRITTEN REPRESENTATIONS FROM MMO AT DEADLINE 3: COD SPAWNING PERIOD

1.1 Introduction

1.1.1.1 This document has been prepared in response to the submission of the MMO (REP3-037) at Deadline 3. The MMO responses relate to the ongoing discussion between the MMO and the Applicant with regard to the spawning period of cod, which relates to a request made by the MMO for the Applicant to consider a seasonal piling restriction which it deems is merited to mitigate the potential for adverse noise effects on this receptor. The MMO had indicated that it considered the spawning period to be January to April (inclusive), whereas the Applicant's view is that it would be more appropriate to focus on the peak spawning period, which it considers to be February to March (as agreed by NRW for the adjacent Mona project in REP4-047).

1.1.1.2 The Applicant has considered the detailed response from the MMO below and has provided a response that gives evidence to support the refinement of the peak spawning period for cod in the east Irish Sea. This detail provides additional context to the baseline information on cod spawning provided in Volume 4, Annex 3.1: Fish and shellfish ecology technical report (APP-051) to allow more specific targeting of potential mitigation measures which could be incorporated into the Outline Underwater Sound Management Strategy (UWSMS; APP-068). The Applicant clarifies that the information provided below does not change the overall conclusions of the impact assessment on cod spawning presented in Volume 2, Chapter 3: Fish and shellfish ecology (APP-021).

1.1.1.3 In summary, it remains the Applicant's position that the UWSMS (APP-068) is the appropriate mechanism to determine what, if any, mitigation is needed to manage piling impacts on fish receptors, with specific consideration of herring and cod spawning. However, if when developing that strategy it is clear that the levels of piling expected in the final project design pose a significant risk to cod or herring spawning due to a potential timing overlap with the key fish spawning periods, then seasonal restrictions will be considered as a potential mitigation amongst other options, as set out in section 1.8 of the outline UWSMS (APP-068). With regard to cod, if such a restriction is considered necessary, then it is the Applicant's position that discussion of any such restriction should be focused on the peak spawning period only (as that is when the receptor is most likely to be spawning in sufficient densities for any potentially significant effect to materialise). Based on the Applicant's consideration of the evidence provided by the MMO below, this peak spawning period remains February to March. Spawning restrictions have the potential to materially impact on project schedule and therefore, it is of critical importance that they are only considered for the period for which the measure will deliver tangible benefit to reducing any potential significant effect. Furthermore, and importantly it is also critical that the final scheme design can inform any discussion around restrictions as the location and duration (both for individual piles and the overall piling duration for all piles) will have a material impact on how a restriction may be most appropriately framed in practice. Hence, why the Applicant considers this is best dealt with post consent when this detail will be available.

1.2 Summary of MMO Submission

1.2.1.1 The submission from the MMO states amongst other things:

1.2.1.2 [Paragraph 4.5.4] The MMO directs the Applicant to Maxwell *et al*., (2012) and Armstrong *et al*., (2012) to support their discussion of peak months for cod spawning in the Irish Sea. Maxwell *et al*., (2012) used ichthyoplankton survey data from 2008 for Irish Sea plaice, cod and haddock to estimate annual egg production during the 2008 spawning season using advanced generalized additive models (GAM). As part of this study, spatial patterns of modelled and observed egg production for cod were included. For cod, there were clear hot spots for egg production in the east and west Irish Sea. The authors also correlated spatial patterns of modelled and observed egg production with the timing of the ichthyoplankton surveys to examine when cod egg production for the 2008 spawning season peaked.

1.2.1.3 [Paragraph 4.5.5] Armstrong *et al*., (2012) then summarised the results of applications of annual egg production methodologies (including those used by Maxwell *et al*., 2012) to estimate the spawning stock biomass of cod and other species in the Irish Sea in 1995, 2000, 2006, 2008, and 2010. Armstrong *et al*., (2012) expanded the GAM analyses to present the spatial patterns of daily egg production of cod for the years 2006 to 2010. Armstrong *et al*., (2012) also examines the seasonal patterns in egg production fitted by the GAM for spawning in the East and West of the Irish Sea.

1.2.1.4 [Paragraph 4.5.6] Maxwell *et al*., (2012) and Armstrong *et al*., (2012) are appropriate sources for informing discussions on temporal refinement of the recommended piling restriction but, given the age of these publications, it would strengthen the Applicant's position for a refinement if updated data were presented in a similar format. This data may take the form of ichthyoplankton data for the Irish Sea to indicate areas of higher or lower cod larval abundance, or Northern Irish Ground Fish data (NIGFS) which could be filtered to separate out female cod caught within each trawl per year and the maturity classes of interest (spawning and spent fish) taken as a subset to characterize where spawning-ready and post-spawning adult female cod are located. The MMO directs the Applicant to the Agri-Food and BioSciences Institute (AFBI) in Northern Ireland to find out what survey data is available for this purpose.

1.3 Applicant's Response

1.3.1.1 The Applicant welcomes the MMO highlighting these data sources which may aid in the refinement of the cod spawning period and has summarised the main points below.

1.3.1.2 Specifically, the Maxwell *et al*. (2012) analysed the data from five ichthyoplankton and larvae surveys which sampled from approximately 100 stations each across the entire Irish Sea during the end of January to end of April 2008 spawning period for cod (they also sampled for plaice, and haddock). The dates for the surveys were: Survey 1: 28/1-6/2; Survey 2: 18/2-28/2; Survey 3: 5/3-15/3; Survey 4: 25/3-3/4, and Survey 5: 14/4-22/4. Analysis of the cod larvae abundance and distribution indicated the presence of two key spawning sites, in the west and east of the Irish Sea. The west spawning site was located off the east coast of Ireland, and the east spawning site coincided with the Morgan Offshore Wind Project: Generation Assets and the surrounding area, extending to north Wales. The data identified that cod spawning peaked between Surveys 2-4 in both spawning sites, with a date range in which spawning was occurring of 18/02-03/04. Peak spawning within this period was refined with relatively high accuracy to 23/02-10/03. The largest amount of spawning was noted in the western location, off the east coast of Ireland. This was confirmed as a significant hotspot for

spawning through sampler deployment and subsequent plankton sample data analysis.

1.3.1.3 However, it should be noted that Maxwell *et al*. (2012) was only a snapshot of the Irish Sea cod spawning in 2008. A time series of data from five large scale surveys from 1995-2010 across the Irish Sea were analysed and presented by Armstrong *et al*. (2012), which included the 2008 survey assessed in Maxwell *et al*. (2012). The analysis of the time series data showed cod spawning grounds regularly occurring in the same west and east locations as in Maxwell *et al*. (2012). Armstrong *et al*. (2012) noted peak cod spawning occurring in the mid-February to mid-March period over the 2006-10 period. There was a slight delay of approximately a week noted in the peak of the west spawning population in 2010 compared to the east spawning population, but both still spawned within this same mid-February to mid-March period. At both spawning sites for all years investigated, a small amount of spawning occurred at the end of January and in April, but this was outside of the peak spawning period of February to March in all cases. This noted a significant drop in eggs in 2010, with an 80% reduction in the east location, and a 50% reduction in the west location; the west Irish Sea (where the decrease was less pronounced) is subject to a cod spawning fisheries closure between mid-February to the end of April.

1.3.1.4 More up-to-date information specifically about cod spawning is scarce, but a range of data sources are available to help characterise the broader cod population distribution and temporal trends within the Irish Sea. Specifically, catches of cod from the annual Northern Irish Groundfish Survey (NIGFS) in the peak spawning period of February-April between 2012 and 2022 have been collated by the Applicant from ICES Division 7.a within the Irish Sea. The data over this time period was analysed to calculate the overall abundance of both male and female immature, maturing, spawning, and spent cod for each year in order to detect any patterns in the data which might indicate peak spawning periods for this species. The data analysed showed a peak in abundance in 2015 which was considerably higher than the preceding years of data. This was followed by a decline in abundance to below pre-2015 levels, up to and including 2022 (ICES, 2022).

1.3.1.5 The data collated over the 10 year time period demonstrates a consistent trend of highest catches occurring during March; however this should be interpreted with caution due to limited sampling dates in this region per year, with some survey years sampling only in March or April, and limited sampling generally conducted in February (ICES, 2022). The number of individuals caught between February and April over this time period, where available, are presented in Figure 1.1. This data supports the trend of cod abundances generally being highest in the Irish Sea in March, with reduced numbers of spawning cod present in February and April.

1.3.1.6 Data was also available from the NIGFS (ICES, 2022) surveys on the sex and spawning condition of the cod caught. This showed that, for all years (2012-2022), the number of male and female immature and spent cod were similar across the months they were present. The number of maturing female cod exceeded the male maturing cod numbers only slightly in March, with none caught in April for either sex in any year. The major difference noted from the data, as shown in Figure 1.2, was that approximately four times more spawning males than females were present in March and April, and no spawning females were present in February. The data also strongly indicated peak abundances of cod in March, across all categories but particularly individuals in spawning condition. This indicates that spawning is time restricted and mostly occurs in March, supporting the findings of Maxwell *et al*. (2012) and Armstrong *et al*. (2012).

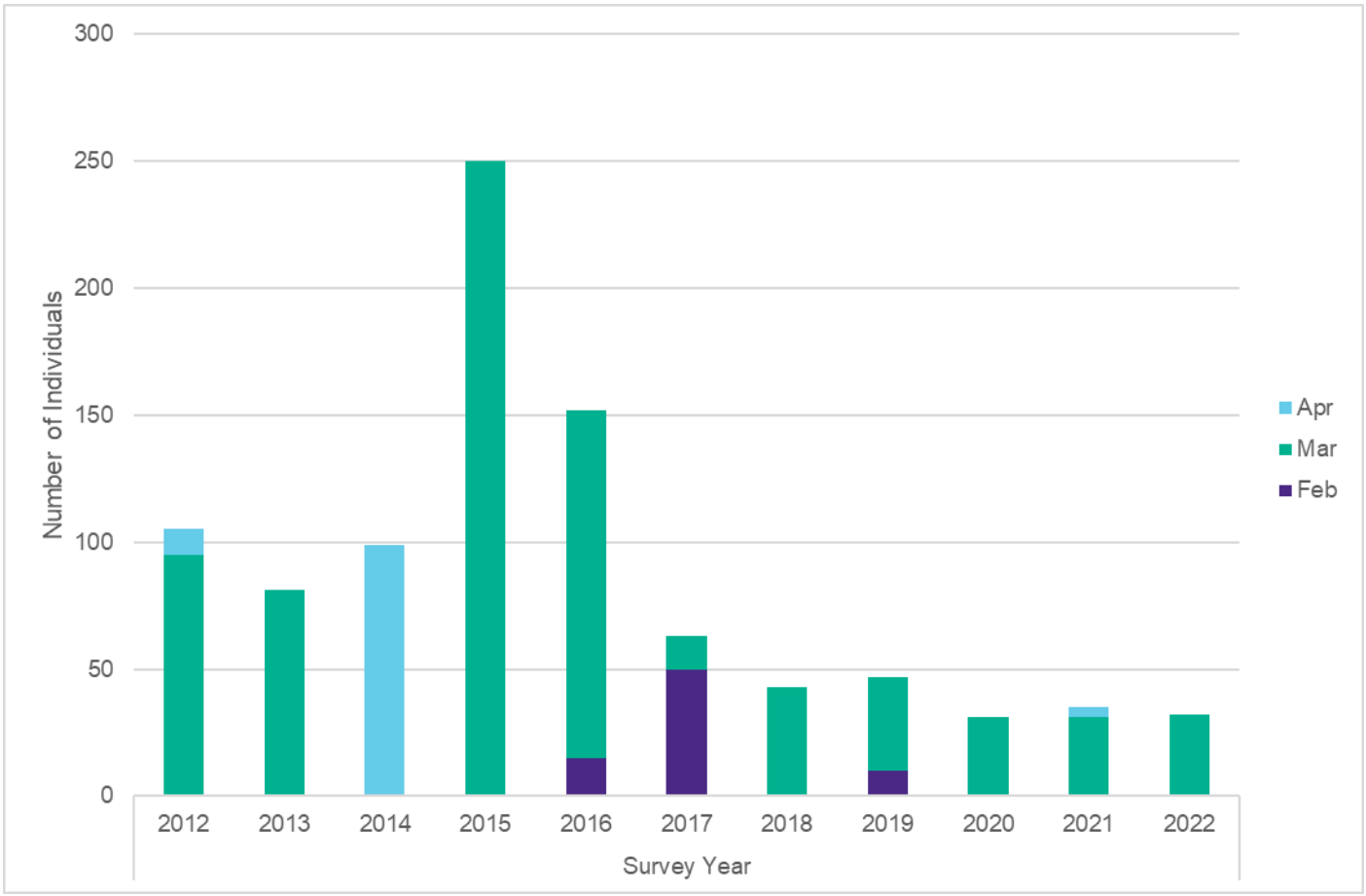

Figure 1.1: Abundance of Cod per Month and Year within the Irish Sea

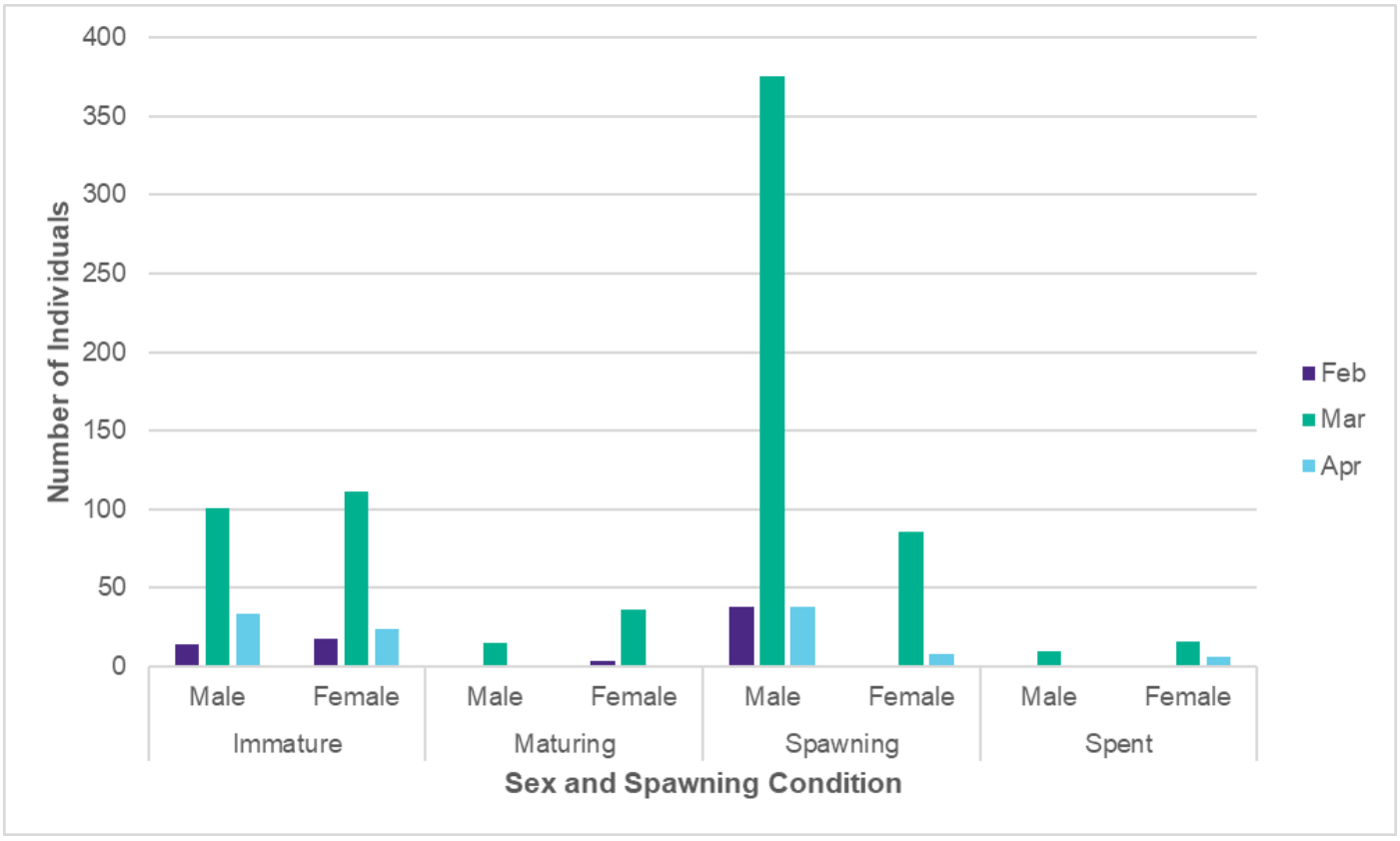

Figure 1.2: Aggregated sex and spawning condition by month across all surveys 2012-2022

2 REFERENCES

Armstrong, M., Aldridge, J., Beggs, S., Goodsir, F., Greenwood, L., Maxwell, D., Milligan, S., Praël, A., Roslyn, S., Taylor, N. and Walton, A. (2012) Egg production survey estimates of spawning stock biomass of cod, haddock and plaice in the Irish Sea: 1995, 2000, 2006, 2008 and 2010. Working Document 9, ICES Working Group on the Celtic Seas Ecoregion, May 2011.

ICES (2022) Stock Annex: Cod (*Gadus morhua*) in Division 7.a (Irish Sea). 10.17895/ices.pub.20169350. (Accessed: 21 November 2024).

Maxwell, D.L., Armstrong, J., Beggs, S., and Aldridge, N. (2012) Annual egg production estimates of cod (*Gadus morhua*), plaice (*Pleuronectes platessa*) and haddock (*Melanogrammus aeglefinus*) in the Irish Sea: The effects of modelling choices and assumptions. Fisheries Research, 117-8, 146-55.