Marine Management Organisation

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Morgan Offshore Windfarm Generation Assets Case Team
Planning Inspectorate
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(Email only)

MMO Reference: DCO/2022/00003
Planning Inspectorate Reference: EN010136
Identification Number: 20048964

10 July 2024

Dear Sir or Madam,

Planning Act 2008, bp Alternative Energy Investments Ltd/Morgan Offshore Wind Limited, Proposed Morgan Offshore Windfarm Generation Assets Order

This document comprises the Marine Management Organisation's (MMO) initial comments in respect of the above Development Consent Order application (DCO Application) in the form of a relevant representation.

This is without prejudice to any future representation the MMO may make about the DCO Application throughout the examination process. This is also without prejudice to any decision the MMO may make on any associated application for consent, permission, approval or any other type of authorisation submitted to the MMO either for the works in the marine area or for any other authorisation relevant to the proposed development.

The MMO's role in Nationally Significant Infrastructure Projects (NSIPs)

The MMO was established by the Marine and Coastal Access Act 2009 (the 2009 Act) to make a contribution to sustainable development in the marine area and to promote clean, healthy, safe, productive and biologically diverse oceans and seas.

The responsibilities of the MMO include the licensing of construction works, deposits and removals in English inshore and offshore waters and for Northern Ireland offshore waters by way of a marine licence. Inshore waters include any area which is submerged at mean high water spring (MHWS) tide. They also include the waters of every estuary, river or channel where the tide flows at MHWS tide. Waters in areas which are closed permanently or intermittently by a lock or other artificial means against the regular action of the tide are included, where seawater flows into or out from the area.

In the case of NSIPs, the Planning Act 2008 (the 2008 Act) enables DCOs for projects which affect the marine environment to include provisions which deem marine licences. As a prescribed consultee under the 2008 Act, the MMO advises developers during pre-application on those aspects of a project that may have an impact on the marine area or those who use it. In addition to considering the impacts of any construction, deposit or removal within the marine area, this also includes assessing any risks to human health, other legitimate uses of the sea, and any potential impacts on the marine environment from terrestrial works.

Where a marine licence is deemed within a DCO, the MMO is the delivery body responsible for post-consent monitoring, variation, enforcement and revocation of provisions relating to the marine environment. As such, the MMO has a keen interest in ensuring that provisions drafted in a deemed marine licence enable the MMO to fulfil these obligations.

Further information on licensable activities can be found on the MMO's website here. Further information on the interaction between the Planning Inspectorate and the MMO can be found in our joint advice note 11 Annex B here.

Relevant Representation

On the 30 May 2024 the MMO received notice under Section 56 of the 2008 Act that the Planning Inspectorate (PINS) had accepted an application made by bp Alternative Energy Investments Ltd, (the Applicant) for a DCO Application (MMO ref: DCO/2022/00003 PINS ref: EN010136).

The DCO Application includes a draft development consent order (the DCO) and an Environmental Statement (the ES). The draft DCO includes, at Schedule 3 and 4, draft Deemed Consent under Part 4 (Marine Licensing) of the 2009 Act (Draft Marine Licence (the DML)).

The DCO Application seeks authorisation for the construction, operation and maintenance of Morgan Offshore Windfarm Generation Assets located approximately 22 kilometres (km) from the Isle of Man Coastline and approximately 37km from the Northwest coast of England; comprising of up to 96 wind turbine generators, all associated array area infrastructure and all associated development (the "Project).

Please find the MMO comments below.

Yours sincerely

[redacted]

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Contents

1. The Proposed Development

1.1 Proposed Development Details

1.1.1 Morgan Offshore Windfarm Generation Assets (MOWF) is a proposed offshore windfarm located approximately 22km from the Isle of Man coastline, and approximately 37km from the northwest coast of England.

1.1.2 The Morgan Array Area is 280 square kilometres (km^2) in area and consists of up to 96 wind turbines. The offshore infrastructure will also include up to 60km of interconnector cables and 390km of Inter-array cables.

1.1.3 Two DMLs are included in the draft DCO. One in relation to Wind Turbine Generators (WTG) and Associated Infrastructure**,** and one for Offshore Substation Platforms and Interconnector Cables.

2. General Comments on the Application

2.1 Major Comments

2.1.1 The ES correctly identified that the proposed development is within the North West Offshore Plan Area. The MMO requests that all policies are reviewed within a table to show compliance. This must be produced as the Secretary of State must use the North West Offshore Marine Plan when making planning decisions for the sea, coast, estuaries and tidal waters, as well as developments that impacts these areas, such as infrastructure. The relevant marine plan policies that should be met can be identified using the Explore Marine Plans tool and policy information on the following website:
https://www.gov.uk/guidance/explore-marine-plans

2.1.2 Although some marine plan policies are discussed under the relevant chapters to which they relate, the MMO requires the Applicant to detail how the proposed project is compliant with the relevant marine plans by producing a marine plan policy assessment in one document.

3. Development Consent Order and Deemed Marine Licences

3.1 Draft Development Consent Order

3.1.1 The MMO has reviewed the draft DCO and provided comments below. The MMO is currently undertaking a detailed review and will produce further comments on the DCO at Deadline 1 and during the course of the examination.

3.2 Unexploded Ordnance

3.2.1 The MMO would like clarity on whether the investigation of and the detonation of unexploded ordnance (UXO) are included within the licenced activities. These are not part of any of the works orders or set out within the activities of Schedule 3 and 4, however, a draft UXO marine mammal mitigation plan is proposed.

3.3 Arbitration

3.3.1 Article 13 proposes a new enhanced appeals procedure for the applicant should the MMO refuse an application. This appeals procedure is not available for other marine licence holders. The MMO strongly requests that the appeals procedure for the MMO is removed from the DCO.

3.3.2 Appeals are already available to the Applicant in the form of an escalated internal procedure and judicial review (JR), and therefore, the inclusion of any additional appeal mechanism within the DCO and DML is unnecessary. The Marine Licensing (Licence Application Appeals) Regulations 2011 apply a statutory appeal process to the decisions that the MMO makes regarding whether to grant or refuse a licence or conditions which are to be applied to the licence. However, the regulations do not include an appeal process to any decisions the MMO is required to give in response to an application to discharge any conditions of a marine licence issued directly by us. Therefore, if the DCO were to be granted with the proposed appeal process included, this would not be consistent with the existing statutory processes.

This amendment would be introducing, and making available to this specific Applicant, a new and enhanced appeal process which is not available to other marine licence holders, creating an unlevel playing field across the regulated community. These proposals go against the statutory functions laid out by parliament. The private nature of the arbitration process does not align with the public functions and duties of the MMO. The removal of the MMO decision-making function, and its placement into the hands of a private arbitration process, is inconsistent with the MMO legal function, powers and responsibilities, which was never intended by Parliament in enacting the 2008 Act or the 2009 Act. The MMO also considers that arbitration would not be consistent with Annex B of the PINS Guidance Note 11 (https://infrastructure.planninginspectorate.gov.uk/legislation-andadvice/advicenotes/an11-annex-b/), which states that "the MMO will seek to ensure wherever possible that any deemed licence is generally consistent with those issued independently by the MMO". Inclusion of a different mechanism for determination of disputes in respect of DMLs would not be consistent with Marine Licences issued independently by the MMO.

3.3.3 In addition to this, the MMO emphasises that we are an open and transparent organisation that engages actively, and maintains excellent working relationships, with industry and those it regulates. The MMO discharges its statutory responsibilities in a manner which is both timely and robust in order to fulfil the public functions vested in it by Parliament. The scale and complexity of NSIPs creates no exception in this regard, and indeed it follows that where decisions are required to be made, or approvals given, in relation to these developments of significant public interest, only those bodies appointed by Parliament should carry the weight of that responsibility. Since its inception, the MMO has undertaken licensing functions on over 130 DCOs, comprising some of the largest and most complex operations globally. The MMO is not aware of an occasion whereby any dispute which has arisen in relation to the discharge of a condition under a DML has failed to be resolved satisfactorily between the MMO and the applicant, without any recourse to an 'appeal' mechanism.

3.4 Transfer of Benefit of the Order

3.4.1 The MMO understands that Article 7 – Benefit of the Order is drafted in a similar way to previous consents granted by the Secretary of State (SoS), however the MMO has major concerns over the wording.

3.4.2 Article 7(1)-(3) gives the right to permanently transfer the benefits of the DCO including the deemed marine licences (DML) in Schedule 3 and 4 to a third party with the consent of the SoS.

Part 2: Article 7(1)-(3)

"(1) Subject to this article, the provisions of this Order have effect solely for the benefit of the undertaker.

(2) Subject to paragraph (5), the undertaker may with the written consent of the Secretary of State—(a) transfer to another person (the transferee) any or all of the benefit of the provisions of this Order (excluding licence 1 or licence 2) and such related statutory rights as may be agreed between the undertaker and the transferee; and (b) grant to another person (the lessee) for a period agreed between the undertaker and the lessee any or all of the benefit of the provisions of this Order (excluding licence 1 or licence 2) and such related statutory rights as may be so agreed, except where paragraph (6) applies, in which case the consent of the Secretary of State is not required.

(3) Subject to paragraph (5), the undertaker may with the written consent of the Secretary of State—(a) where an agreement has been made in accordance with paragraph (2)(a), transfer to the transferee the whole of licence 1 or licence 2 (as appropriate) and such related statutory rights as may be agreed between the undertaker and the transferee; and (b) where an agreement has been made in accordance with paragraph (2)(b), grant to the lessee for the duration mentioned in paragraph (2)(b), the whole of licence 1 or licence 2 (as appropriate) and such related statutory rights as may be so agreed."

The MMO considers that this is a clear departure from the 2009 Act, which would normally require the licence holder (here 'the undertaker') to make an application to the MMO for a licence to be transferred. Instead, this provision operates to make the

decision that of the undertaker, with the Secretary of State (SoS) providing consent to the transfer, rather than the MMO as the regulatory authority for marine licences considering the merits of any application for a transfer.

Parliament has already created a statutory regime for such a process, and it is unclear what purpose the written consent of the SoS actually serves. If the intention is for the undertaker to be able to transfer the benefits under the terms of the DCO outside the established procedures under 2009 Act, the MMO queries why is it considered necessary or appropriate for the SoS to 'approve' the transfer of the DML.

It is also unclear what criteria the SoS would be taking in determining whether to approve any transfer, and how this would differ from a consent granted by the MMO under the existing 2009 Act regime.

Because of this confusion and potential duplication, it is the position of the MMO that these provisions are removed and that any transfer should be subject to the existing regime under the 2009 Act, with the decision maker remaining the MMO.

3.4.3 Article 7(2)(b) and 7(3)(b) gives the right to temporarily transfer the benefits of the DCO (including DML) to a third party.

Article 7(2)(b)
"grant to another person (the lessee) for a period agreed between the undertaker and the lessee any or all of the benefit of the provisions of this Order (excluding licence 1 or licence 2) and such related statutory rights as may be so agreed, except where paragraph (6) applies, in which case the consent of the Secretary of State is not required."

Article 7(3)(b)
"where an agreement has been made in accordance with paragraph (2)(b), grant to the lessee for the duration mentioned in paragraph (2)(b), the whole of licence 1 or licence 2 (as appropriate) and such related statutory rights as may be so agreed."

The MMO resists the inclusion of this article. Here the written consent of the SoS is not required. The MMO does not recognise that this would create a more streamlined system. Rather, it operates simply to create an additional administrative procedure for marine licences (and one not envisaged by Parliament) and with no clarity in how it will operate.

3.4.4 The MMO has concerns regarding Article 7(4).

Article 7(4)
"The Secretary of State shall consult the MMO before giving consent to the transfer or grant to another person of the benefit of the provisions of licence 1 or licence 2."

The MMO notes that there is no obligation for the SoS to take into account the views of the MMO when providing its consent. Furthermore, there is no obligation for the MMO to be informed of the decision of the SoS, notwithstanding its impact on the MMO as the licencing authority. From a regulatory perspective it is highly irregular that a decision to transfer a licence should not be the decision of the regulatory authority in that area (the MMO), but instead should be subject to such a cursory

process as is set out in Article 7(1)-(3). The MMO thus resists this change as unworkable. As explained above, Articles 7 (1)-(3) sets out what is effectively a new non-legislative regime for the variation and transfers of marine licences. In support of these provisions, Article 7(11) explicitly disapplies sections 72(7) and (8) of the 2009 Act, which would otherwise govern these procedures.

3.4.5 Article 7(11).

"Section 72(7) and (8) of the 2009 Act do not apply to a transfer or grant of the benefit of the provisions of licence 1 or licence 2 to another person by the undertaker pursuant to an agreement under this *article."*

This conflicts with the MMO's stated position that the DML granted under a DCO should be regulated by the provisions of the 2009 Act, and specifically by all provisions of section 72.

Section 72(7)(a) of the 2009 Act permits a licence holder to make an application for a marine licence to be transferred, and, where such an application is approved, for the MMO to then vary the licence accordingly (s. 72(7)(b)). This power that should be retained and used in relation to the DML granted under the DCO and the MMO therefore resists the inclusion of this article 7(11) to disapply these provisions.

The key concern held by the MMO is that Article 7 operates to override and/or unsatisfactorily duplicate provision that already exist within the 2009 Act for dealing with variations to marine licences. Such provisions are also inconsistent with the PINS Guidance on how DMLs should operate within a DCO. Advice Note Eleven, Annex B, as referenced in comment 3.3.2, provides that where the undertaker choses to have a marine licence deemed by a DCO, the MMO, "will seek to ensure wherever possible that any deemed licence is generally consistent with those issued independently by the MMO." Article 7 as drafted is not in compliance with this guidance.

3.4.6 The MMO objects to the provisions relating to the process of transferring and/or granting the deemed marine licences set out in the draft DCO at Part 2, Article 7 insofar as these are intended to apply to the MMO and requests paragraphs 7(4), 7(8) and 7 (11)be removed in their entirety, with a clarification added to specifically exclude these provisions from applying to the MMO (with corresponding wording amended in the Deemed Marine Licences).

3.4.7 The MMO is concerned that the procedure proposed represents an unnecessary duplication of the existing statutory regime set out in s72 of the 2009 Act and that it will give rise to significant enforcement difficulties for the MMO. The MMO also considers that it has the potential to prejudice the operation of the system of marine regulatory control in relation to the proposed development. The MMO also regards the proposed procedure as cumbersome, more administratively burdensome, slower and less reliable than the existing statutory regime set out in s72 of the 2009 Act.

3.4.8 To summarise, the MMO considers that little advantage is gained for the Applicant by these provisions, and the tangible risks and disadvantages that it poses can be avoided by retaining the existing statutory regime in full.

3.5 Use of ‘Maintain’ and ‘Materially’

3.5.1 The MMO strongly considers that the activities authorised under the DCO and DML should be limited to those that are EIA assessed within the ES, and the statement that activities will be limited to those that ‘do not give rise to any materially new or materially different environmental effects’ should be updated to clarify this.

3.5.2 The MMO considers that wording should be updated to ‘do not give rise to any new or different environmental effects to those assessed in the environmental information’. This also applies to the definition of “maintain”.

3.5.3 The intention behind the EIA legislation is to protect the environment by ensuring that in deciding whether to grant a development consent for a project, and in deciding what conditions to attach to that consent, the decision has full knowledge of what the likely significant environmental effects of the project/development will be. That knowledge then guides the consent process and what conditions, if any, to attach to the consent. Additionally, there is considerable public consultation under the EIA legislation process because the process recognises the importance of local knowledge in environmental decision making.

3.5.4 The EIA legislation was designed to apply to those plans/projects which could be sufficiently detailed and particularised at the application stage, to allow the consenting decision to be taken in the full knowledge of what the likely significant effects of that plan or project would be. In such circumstances, it would be unnecessary to create a legal obligation under the order which requires the activities to remain within what was assessed within the ES under the EIA legislation. This is because the consent authorises the detailed and well particularised project, assessed in the ES, to be carried out, and, therefore, providing the development is constructed as per the consent, those works would, by default, remain within the parameters of the EIA assessment.

3.5.5 The difficulty identified with assessment of environmental impact, as was discussed in the Rochdale Envelope case, is that to deal with an outline planning case, where the project will flex over time, you need to undertake the assessment at the outline permission stage when there is not enough detail to identify properly what the final design of the project will actually be. In the case of Rochdale, the court was saying things could remain flexible providing the assessment of environmental impact took account of the need for evolution of the project over time and assessed the likely significant effects within clearly defined parameters, and then the consent granted imposed conditions to ensure that the process of evolution kept within the parameters of the assessment of environmental impact. Whilst there might not be an express provision that you can point to in the legislation that says that a project cannot exceed the effects assessed in the assessment, it is implied (or the purpose of EIA would be undermined) and the Rochdale case discusses this.

3.5.6 In this DCO and the DML, the Applicant is wanting flexibility in terms of the design details (both in terms of some of the construction details, and in relation to some of the maintenance activities). Where those design details are not finalised at the application stage, the Applicant is wanting to retain some flexibility and is proposing that the works that can be carried out should be restricted to those which do not give rise to materially new or materially different environmental effects to those assessed

in the ES. The concern with this is that the inclusion of the word materially here would allow the undertaker to carry out works whose effects are outside of the likely significant effects assessed in the ES, providing they do not do so materially, that is, in any significant way, greatly, or considerably. This is not what the purpose of the EIA process is, and it runs contrary to the purpose of EIA. In addition, whilst the undertaker is responsible for producing the environmental information and statement on which the EIA decision is based, the appropriate authority is responsible for the EIA consent decision. The inclusion of the word materially means essentially that the undertaker makes the decision as to what is and what is not material. Under EIA legislation it is for the appropriate authority to determine what the likely significant effects will be, and how those should be mitigated.

3.5.7 The MMO does not consider that it is appropriate to use the word 'material' in these circumstances. If the Applicant wants the flexibility of not being prescriptive about the design from the start, the Order, and the DML granted through it, should restrict works which can be carried out to those which do not give rise to any new or different environmental effects to those assessed in the ES.

3.6 Schedules 3 and 4

3.6.1 Paragraph 7 of Part 1 which refers the provisions of section 72 should be removed in its entirety.

3.6.2 For regulatory certainty and consistency with other DMLs, the MMO proposes that Paragraph 9, Part 1 is amended to state 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 is unlikely to will not give rise to any materially new or materially different environmental effects from those assessed in the environmental statement.

3.7 Determination Dates

3.7.1 The MMO strongly considers that it is inappropriate to put timeframes on complex technical decisions of this nature. The time it takes the MMO to make such determinations depends on the quality of the application made, the complexity of the issues, and the amount of consultation the MMO is required to undertake with other organisations to seek resolutions. The MMO's position remains that it is inappropriate to apply a strict timeframe to the approvals the MMO is required to give under the conditions of the DML given this would create disparity between licences issued under the DCO process and those issued directly by the MMO, as marine licences issued by the MMO are not subject to set determination periods.

3.7.2 Whilst the MMO acknowledges that the Applicant may wish to create some certainty around when it can expect the MMO to determine any applications for an approval required under the conditions of a licence, and whilst the MMO acknowledges that delays can be problematic for developers and that they can have financial implications, the MMO stresses that it does not delay determining whether to grant or refuse such approvals unnecessarily. The MMO makes these determinations in as

timely a manner as it is able to do so. The MMO's view is that it is for the developer to ensure that it applies for any such approval in sufficient time as to allow the MMO to properly determine whether to grant or refuse the approval application.

3.8 Additional Conditions

3.8.1 Condition 13(3) uses the following wording:

"13(3) An operations and maintenance plan substantially in accordance with the outline offshore operations and maintenance plan"

The MMO requests that the word 'substantially' is removed from this condition as it is not required.

3.8.2 Maintenance of the Authorised Scheme

Condition 13(4) refers to activities being carried out with accordance with a plan. MMO assumes that this plan is the operations and maintenance plan referenced in 13(3) however the DML contains a number of plans. MMO requests that the wording is amended making it explicit for the avoidance of doubt. For example:

All operations and maintenance activities must be carried out in accordance with the approved plan approved under sub-paragraph (3).

3.8.3 Notifications and Inspections

Should the undertaker become aware that any of the information on which the granting of this licence was based was materially false or misleading, the undertaker must notify the MMO of this fact in writing as soon as is reasonably practicable. The undertaker must explain in writing what information was materially false or misleading and must provide to the MMO the correct information.

The MMO, in addition to being informed of cable damage, destruction and decay further requires a notification of cable repair. The MMO has provided the following wording for condition 15(11):

The undertaker must ensure that the MMO, the MMO Local Office, local fishermen's organisations, and the Source Data Receipt Team at the UKHO Taunton, Somerset, TA1 2DN (sdr@ukho.gov.uk) are notified within five days of each instance of cable repair, replacement or protection replenishment activity.

3.8.4 Adaptive Management

MMO requests that the following conditions be added to the post-construction monitoring and surveys condition (condition 29 of Schedules 3 and 4) to allow the applicant to provide potential solutions when reviewing the results of monitoring, to be discussed with the MMO and Statutory Nature Conservation Bodies (SNCB).

"(6). In the event that the reports provided to the MMO under sub-paragraph (3) identify a need for additional monitoring, the requirement for any additional monitoring will be agreed with the MMO in writing and implemented as agreed."

"(7). In the event that monitoring reports provided to the MMO under sub-paragraph (3), identifies impacts which are beyond those predicted within the Environmental

Statement/Habitat Regulations Assessment, adaptive management/mitigation may be required. An Adaptive Management/Mitigation Plan to reduce effects to within what was predicted within the Environmental Statement/Habitat Regulations Assessment, unless otherwise agreed in writing by the MMO, must be submitted alongside the monitoring reports submitted under sub-paragraph (3), including timelines and associated monitoring to test effectiveness. This plan must be agreed with the MMO in consultation with the relevant SNCBs to reduce effects to a suitable level for this project. Any such agreed or approved adaptive management/mitigation should be implemented and monitored in full. In the event that this adaptive management/mitigation requires a separate consent, the Applicant shall apply for such consent."

The conditions ensure that all parties are clear what is required if the monitoring shows higher impacts than predicted during the assessment stage.

3.8.5 Provisions on Variations and Approvals

With respect to any condition which requires the licensed activities to be carried out in accordance with the plans, protocols or statements approved under this licence, the approved details, plan or scheme are taken to include any amendments that may subsequently be approved in writing by the MMO. Subsequent to the first approval of those plans, protocols or statements provided, it has been demonstrated to the satisfaction of the MMO that the subject matter of the relevant amendments does not give rise to any materially new or materially different environmental effects to those assessed in the environmental information.

3.9 Conditions to Remove

3.9.1 Force Majeure

The MMO does not consider that this provision is necessary as section 86 of the 2009 Act provides a defence for action taken in an emergency in breach of any licence conditions. The MMO requires justification or rationale as to why this provision is considered necessary.

4 Environmental Statement (ES)

4.1 General Comments

4.1.1 The MMO has focused its review on the following chapters of volume 1 and volume 2 of Morgan Offshore Wind Project: Generation Assets Environmental Statement (ES). However, the MMO has also reviewed the accompanying reports in Volume 3 and relevant technical reports in Volume 4 where required:

Volume 1, Chapter 1: Introduction
Volume 1, Chapter 3: Project Description
Volume 2, Chapter 1: Physical Processes
Volume 2, Chapter 2: Benthic Subtidal Ecology
Volume 2, Chapter 3: Fish and Shellfish Ecology
Volume 2, Chapter 4: Marine Mammals
Volume 2, Chapter 5: Offshore Ornithology
Volume 2, Chapter 6: Commercial Fisheries

4.1.2 An up-to-date schedule including specific timings and dates for each of the proposed works must be provided to the MMO. The MMO must be further informed of any updates, or changes to the schedule, prior to the commencement of the works, to ensure an effective inspection can occur.

4.2 Coastal Processes

4.2.1 The MMO has noted that three potential impacts have been scoped out of the ES. These are: changes to bathymetry due to depressions left by jack-up vessels; changes to sediment transport due to depressions left by jack-up vessels; and scour of seabed sediments during the construction and operations and maintenance phases.

4.2.2 The MMO notes that there have been discussions with Natural England (NE) and other stakeholders over the exclusion of scour impacts from the ES. Whilst it is acceptable for it to be scoped out, the MMO requires clarity on why this is. The MMO recommends that a discussion at the ES stage of the qualitative magnitude of scour in comparison to the volumes of scour protection proposed should be provided. Whilst secondary scour is discussed in Section 1.9.5 of Volume 2, chapter 1, there are no estimations of extents, which the MMO recommends adding.

4.2.3 The MMO requests that scour be considered in terms of the potential impacts it may have on sediment pathways, and additionally, the downstream impacts of scour or the use of scour protections (with secondary scour). An understanding of the qualitative impacts of scour and use of scour protection methods should be presented in a similar way to how secondary scour is discussed in the report. This would be highly beneficial to the ES and would help appease any concerns over scour impacts.

4.2.4 Table 1.7 of volume 2, chapter 1, lists the desktop review of existing studies and datasets which the MMO considers to be appropriate and recent in timelines. Table 1.8 also summarises site-specific surveys which have been undertaken between 2021 and 2022, which includes metocean surveys and multibeam backscatter. The

MMO would expect such data sources to be included and consider it to be a good data source.

4.3 Dredge, Disposal and Chemical Use

4.3.1 The MMO notes that ballast for the gravity bases, as referenced in document J12, is to potentially include rock gravel crushed concrete aggregate high density rocks or possibly dredged sand or other seabed material from site preparation at each gravity base location within the Morgan Array Area. The MMO advises that any decommissioning plan provided should have a clear strategy for how such materials are to be recovered and re-used or disposed.

4.3.2 The MMO considers that appropriate chemical contaminant analysis has been undertaken across the array area, as outlined in Volume 4, Annex 2.1, Appendix F.

4.3.3 Document J6, 'Mitigation and Monitoring Schedule', indicates that there are no overall significant effects noted in terms of physical processes regarding monitoring cables and their burial status, however the MMO notes that this will be secured by means of the Offshore in Principle Monitoring Plan via a condition in the DML. Mitigation and monitoring should include notification to the regulator where there is potential for chemicals used in the construction operation maintenance and decommissioning of the offshore windfarm to have a pathway to the marine environment. This must include those chemicals used within closed systems that require frequent top up, and full details of the risk and justification for use of chemicals must be provided. The MMO advises that monitoring should consider: impacts to sediment transport and sediment transport pathways due to cable burial, and presence of infrastructure and associated potential impacts to physical features and bathymetry; future changes in sediment movements on the burial of cables; potential fisheries impacts, including the cables and their burial status with annual reviews for the first five years of the operational phase (and review VMS data to relate to fishing). However, detailed comments can be provided once the plans are produced following the production of the final scheme design.

4.3.4 Volume 1, Chapter 3, section 3.5.8 details scour protections for foundations, and their justification. An option is for the use of concrete mattresses with linked polypropylene rope lattice, and artificial fronds mattresses made of continuous lines of overlapping buoyant fronds consisting of polypropylene or similar. The frond lines are secured to a polyester webbing mesh base that is itself secured to the seabed by a weighted perimeter or anchors pre-attached to the mesh base. The section states that Seabed Scour Control Systems (SSCS) Frond Mats installed in the North Sea in 1984 remain in place today and have required no maintenance since being deployed, as the mats are designed not to degrade with time (SSCS, 2022). The MMO is considering the risks of placing plastic infrastructure into the marine environment should the infrastructure degrade. The MMO is also aware that the final design of these frond mattresses will be detailed in the Offshore Construction Method Statement that will be submitted to and approved by the MMO prior to commencement of the development.

4.3.5 The MMO considers that is not clear from sections 1.5.1.15 to 1.5.1.21 of Volume 4, Annex 2.1 whether the methods used for the preparation of the trace heavy metals

for analysis are suitable for the results to be compared to the UK action levels, OSPARs background assessment concentrations, or Canadian quality standards. Therefore, the comments on levels of contaminants cannot wholly be accepted, as depending on the extraction method, the concentration level in the sample will vary. The MMO advises that information on extraction methods should be provided in the ES, ensuring that only methods matching those used to determine the relevant sediment quality guideline be followed.

4.4 Benthic Ecology

4.4.1 The MMO raised previous comments concerning the Preliminary Environmental Information Report (PEIR) with regard to the cumulative impact of the Morgan Offshore Windfarm and the introduction of artificial structures into areas of predominantly soft sediments leading to increased risk of introduction and spread of Invasive Non-Native Species (INNS). The MMO has noted that Table 2.32 in volume 2, chapter 2 of the ES includes an assessment of the potential impacts from INNS at each of the construction, operation and maintenance, and decommissioning phases of the proposed development.

4.4.2 The MMO has no concerns regarding the scoping out of accidental pollution during construction, operations and maintenance, and decommissioning due to the commitment to implement industry good practice standards (International Convention for the Prevention of Pollution from Ships), and adherence to the plans set out in the Environmental Monitoring Plan and Marine Pollution Contingency Plan. The likelihood of an accidental spill is therefore low, and the measures put in place will act to prevent an increase in the magnitude of any spill.

4.4.3 Recent research has shown that antifouling paint particles fundamentally alter sediment microbial communities (Tagg et al. 2024), and the input of paint flakes from Wind Turbine Generator (WTG) maintenance is likely to be highly localised and persistent over the lifetime of the Project. The MMO advocates for the monitoring of a subset of WTGs to assess the prevalence/abundance of paint flakes in surrounding sediments and suggest that an assessment of surficial sediment bound paint flakes should be considered in pre- and post-construction monitoring so that a robust assessment can be made of the sediment bound paint flakes before and after construction.

4.4.4 The MMO notes that no specific monitoring has been proposed to test the predictions made within the impact assessment regarding benthic ecology receptors. However, the MMO acknowledges that an Offshore in Principle Monitoring Plan (document J11) has outlined associated monitoring that may offer indirect assessment. The MMO recommends that the post-construction assessment of wind turbine generator foundations includes sample collection, in addition to seabed imagery, to identify Invasive Non-Native Species accurately in the attached macroinvertebrate assemblage.

4.5 Fish Ecology

4.5.1 One of the concerns the MMO raised at PEIR stage was the approach to the underwater noise (UWN) assessment, including the modelling and evidence base

used to inform the assessment for behavioural responses to hearing sensitive fish, such as herring and cod. The MMO raised several clarifications relating to maximum design scenario (MDS) for the project upon which much of the UWN impact assessment was based.

4.5.2 The MMO notes that the project design envelope has been refined since PEIR. The use of monopile foundations for both turbines and Offshore Platforms (OSPs) has been removed following geophysical and geotechnical surveys and studies. Tables 3.10 to 3.12 in Volume 1 Chapter 3 now state the MDS for piling activities is now a maximum of 96 turbines and four OSPs.

4.5.3 The MMO has identified inconsistencies between the MDS outlined in the project design (Volume 1, Chapter 3), and MDS used to inform the impact assessment in the fish ecology chapter (Table 3.18 and Table 3.32, Volume 2, chapter 3). MMO requests that clarification is provided on the comments presented in points 4.5.4 to 4.5.6.

4.5.4 Table 3.11 in Volume 1, Chapter 3 states that the pin diameter for pin piled jacket turbine foundations to be 5.5 metres (m) instead of the 3.8m diameter stated in the impact assessment in the fish ecology chapter (Volume 2, chapter 3). The MMO considers that this undermines the confidence in the modelling presented in Figures 3.4 to 3.7 (Volume 2, chapter 3), as the UWN contours indicating the range of impact will be larger for larger piles.

4.5.5 The MMO is of the opinion that the number of pins required to secure the OSPs has been underestimated. This is evidenced in the inconsistency between the information contained within Table 3.18 of Volume 2, chapter 3, and Table 3.12 of Volume 1, Chapter 3. The MDS in Table 3.18 is quoted as being four OSPs with four-legged jacket foundations, requiring three piles per leg, leading to a total of 48 piles. However, the MMO identified in Table 3.12 the MDS for OSPs uses a six-legged jacket foundation requiring three piles per leg. The MMO calculates this resulting in a total of 72 piles being required as opposed to the 48 identified. Table 3.18 in Volume 2, Chapter 3 also states the pin pile diameter to be 3.8m whereas Table 3.12 in the project design section (Volume 1, Chapter 3) states that pin piles are 5.5m in diameter.

4.5.6 The temporal MDS for the duration of piling also appears to be incorrect. In the project description Volume 1, Chapter 3, the installation duration for a single pin pile is stated to be 6.5 hours per pile under the jacket piling scenario. No installation duration is cited in the project description for pin piles under the gravity base scenario. However, in Table 3.18 of the fish ecology chapter (Volume 2, Chapter 3), the average piling duration is up to 4.5 hours piling per pile for jackets, and up to 4 hours piling per pile for gravity base piles. The MMO has therefore reached the conclusion that the estimates for both the number of hours of piling per day, and the cumulative number of hours/days of piling required to install all piles, are likely to be inaccurate.

4.6 Underwater Noise and Fish Ecology

4.6.1 The MMO requests that a number of clarifications are required in relation to the UWN modelling presented within Volume 2, Chapter 3. The MMO advises that the

clarifications requested in points 4.6.2 to 4.6.5 are presented in a technical addendum to the ES. MDS should clearly be presented in relation to the full extent of piling works and the clarifications required of UWN modelling in relation to herring and cod should also be presented.

4.6.2 The MMO notes that the thresholds for mortality and potential mortal injury, recoverable injury, and temporary threshold shift (TTS) have been presented correctly as per the pile driving threshold guidelines described by Popper *et al.* (2014), in Tables 3.23 and 3.25 of Volume 2, Chapter 3. It is therefore unclear why the thresholds described by Popper *et al*. (2014), have not been presented in Figures 3.10 and 3.11 of Volume 2, Chapter 3 and instead, thresholds of 145 decibels (dB) for TTS, 163 dB for recoverable injury and 166 dB for mortality and potential mortal injury have been modelled for group 3 and 4 fish with high hearing sensitivity. Thresholds of 145 dB, 163 dB and 166 dB do not relate to the hearing capabilities in fish and are markedly lower to those described by Popper *et al.* (2014) for the same effects. The MMO requests that modelling outputs are amended to present the range of impact from UWN based on the thresholds for Group 3 and 4 fish with high hearing sensitivity for mortality and potential mortal injury (207 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).

4.6.3 The MMO raised previous concerns at PEIR stage due to the use of the 160 dB re 1µPa SPLpk (peak sound pressure level) threshold for modelling behavioural responses in herring with no citation for this threshold and no justification or evidence was provided as to what this threshold is based on. UWN monitoring within the ES has been carried out based upon both 135 dB single strike exposure level (SELss) re 1 µPa2.s and 160 dB re 1µPa SPLpk thresholds. At several points throughout the ES (Volume 2, Chapter 3) it is approximated that 135 dB re 1µPa2.s SELss and 160 dB re 1µPa SPLpk are roughly equivalent however, the MMO considers that this is not accurate. The relation between the two metrics is highly contextual and any "conversion" is subject to various uncertainties, although empirical relationships have been proposed for piling noise (e.g., Lippert et al., 2015). Using this later example, 160 dB SPLpk is roughly equivalent to 143 dB SELss. The MMO does not believe that it is entirely appropriate to apply such conversions to noise thresholds as this further removes them their relevant biological context.

4.6.4 Table 3.19 in Volume 2, Chapter 3 outlines that where concurrent piling is to take place, the maximum hammer energy of 3000 Kilojoules (kJ) will be used and where single event piling is taking place, the maximum hammer energy will be 4,400 kJ. This is reflected in Figure 3.4 (Volume 2, Chapter 3) where the SELcum for concurrent piling using a hammer energy of 3000 kJ has been modelled relative to the herring spawning grounds around the Isle of Man. Figure 3.6 (Volume 2, Chapter 3) shows the SELss UWN contours for single point piling using a hammer energy of 4,400 kJ relative to the herring spawning grounds around the Isle of Man. In both figures, herring spawning grounds are indicated by aggregated Northern Ireland Herring Larvae Survey (NINEL) larval density data for the years 2012 to 2021. Both figures show that the UWN contour for 135 dB fully overlaps with the high intensity herring spawning grounds in the southeast of the Isle of Man, and partially overlap with the high intensity herring spawning grounds in the north and northeast of the Isle of Man. As outlined in the PEIR, the 135 dB threshold, as per Hawkins *et al.* (2014), is considered an appropriate precautionary threshold for modelling behavioural

responses in herring at their spawning ground. Based on Figures 3.4 and 3.6 (Volume 2, Chapter 3), project piling works could have potentially significant impacts on herring spawning if piling was to occur during their spawning season (September to October, inclusive), including disrupting the migration and aggregation of adult herring at the spawning grounds and interfering with their ability to spawn when ready. The MMO has therefore deemed it necessary to place a seasonal restriction on piling in order to protect spawning herring and their eggs and larvae during the spawning season.

4.6.5 Following the review of the PEIR, the MMO requested that a detailed assessment for the impacts of underwater noise from piling using the most recent evidence/data for Atlantic cod, including the potential impacts to eggs and larvae, should be undertaken. Further modelling was requested for the SPLpk of 207 dB for eggs and larvae following a worst-case scenario. This recommendation was in line with MMO's previous recommendations for projects of a similar nature in the Irish Sea, for example, the Walney Extension Offshore Wind Farm (OWF) had a piling restriction during the cod spawning season to ensure any significant impacts to cod were mitigated. This does not appear to have been modelled specifically, however modelling of UWN emissions in relation to high and low intensity cod spawning grounds has been presented in Figures 3.5, 3.11 and 3.14 (Volume 2, Chapter 3). Clarification is required on the threshold modelled in Figure 3.11, and the hammer energy modelled in Figure 3.14, which is lower than the stated maximum. Figure 3.5 presents SPLpk noise contours for every 5 dB increment for a 4,400 kJ hammer energy at the north modelled location, which is in the middle of the high intensity cod spawning ground, however some clarification of this figure is also needed regarding the diameter of the pile used in the modelling (as per comment 4.6.4). The project falls entirely within the high intensity cod spawning grounds. Cod is a hearing specialist (has a swim bladder involved in hearing) and is highly vulnerable to noise disturbances (Popper et al., 2014), therefore the impact ranges for mortality and potential mortal injury, recoverable injury, TTS, startle response, and possible moderate to strong avoidance are likely to fall entirely or mostly within the spawning grounds. Clarifications requested in points 4.5.3 and 4.6.1 are required so that impacts to cod can be appropriately assessed. Pending clarifications on the UWN modelling for cod, the MMO considers that a seasonal piling restriction is likely to be necessary to protect gathering and spawning adult cod, and their eggs and larvae, will be necessary during the spawning season (January to April inclusive).

4.6.6 Due to the uncertainties in the UWN modelling and assessments presented in Volume 2, Chapter of the ES, the MMO is precautionarily requesting that seasonal piling restrictions be implemented to prevent significant disruption to spawning cod and herring, and their eggs and larvae, during their sensitive spawning seasons (please see points 4.6.4 and 4.6.5). The use of noise abatement technologies during piling operations at the Morgan Array could reduce the range of impact from UWN sufficiently that UWN emissions from piling will not overlap with the spawning grounds of cod and herring. In this way, and providing that suitably accurate and detailed modelling is presented, it may be possible to refine the MMO's request of a temporal piling restriction. Given the availability of effective alternatives to unmitigated piling and the range of noise abatement options, unmitigated pile driving cannot be justified on the basis that there are no realistic alternatives. It should also be noted that, given the expansion of OWF in the Irish Sea through the development of the Morgan, Mona, and Morecambe OWFs in the next few years, noise abatement should be considered

in order to minimise the cumulative impact of UWN emissions from piling through the region.

4.6.7 The MMO notes that the modelling presented in Figures 3.4 and 3.6 (Volume 2, Chapter 3) present unmitigated piling scenarios. Given the availability of effective alternatives to unmitigated piling, such as noise abatement measures to reduce noise at source, unmitigated pile driving cannot be justified on the basis that there are no realistic alternatives. Noise abatement measures would reduce the range of potential impact from UWN on sensitive species and habitats, an issue which is especially pressing given the wider context of the current expansion of offshore wind developments in the Irish Sea. To ensure adequate preparations are made and potential delays avoided, the MMO recommends planning for noise abatement measures at the earliest opportunity and to incorporate such measures. The implementation of adequate noise abatement strategies may also remove the need for seasonal piling restrictions, providing that the range of impact from UWN in relation to spawning cod and herring is adequately reduced.

4.6.8 The MDS used in the cumulative assessment for UWN impacts to fish is the same as that presented in Table 3.18 (Volume 2, Chapter 3). It should be noted that the clarifications outlined in 4.6.2 to 4.6.3 will also apply to the cumulative scenarios. The MMO has also noted a number of minor issues within the cumulative effects assessment methodology (Volume 2, Chapter 3, Section 3.11) section which are required to be clarified before the assessment can be accepted. More details are found in points 4.6.9 and 4.6.10.

4.6.9 Scenarios 1 and 3 of the cumulative effects assessment (Volume 2, Chapter 3, Section 3.11) appear to be the same and it is not clear how these scenarios are different. Both scenarios take the Morgan Generation Assets together with the Morgan and Morecambe OWF Transmission Assets.

4.6.10 Repeated reference is made to the installation of monopiles in the cumulative assessment for UWN effects on fish. However, the option of using monopiles as a base for OSPs and turbines has been removed from the Morgan OWF design envelope, the Applicant has previously indicated that the design envelope for the Morgan and Morecambe Transmission Assets has been updated to include no elements which require piling. It appears that an incorrect maximum hammer energy has also been stated (5,500 kJ rather than the updated maximum hammer energy of 4,400 kJ).

4.6.11 It is clear from Table 3.31 (Volume 2, Chapter 3) that the years 2026 to 2029 will be a period of significant development in the Irish Sea with no less than four offshore wind projects being installed. Serious concerns remain as to the impact on fish receptors from cumulative UWN arising from the various OWF projects described in Sections 3.10 and 3.11 of the fish ecology chapter (Volume 2, Chapter 3). The MMO is of the opinion that mitigation measures and careful scheduling are necessary to reduce the impacts to fish which have spawning grounds in the region. The MMO recommends that the cumulative impact range contours are presented, for all the projects discussed in the cumulative impact assessment, as a figure to help better visualise any potential cumulative impacts between OWF projects.

4.6.12 The UWN modelling presented includes contours for each 5 dB increment. When these graduating contours are overlaid onto the spawning and nursery grounds maps from Coull *et al.* (1998) and Ellis *et al.* (2012), the figures become overloaded with information which affects ease of interpretation. The MMO recommend that these figures should be kept as simple as possible. The spawning and nursery grounds maps from Coull *et al.* (1998) and Ellis *et al.* (2012) need to be included on UWN modelling figures. However, the UWN contours which are of consequence to the assessment should be the only ones presented, namely: the thresholds for Group 3 and 4 fish with high hearing sensitivity for mortality and potential mortal injury (207 SELcum); recoverable injury (203 SELcum); and, TTS (186 SELcum) as per the pile driving threshold guidelines described by Popper *et al.* (2014). For the purpose of modelling behavioural responses in herring and other hearing sensitive fish at their spawning ground, a threshold of 135dB (SELss), based on research by Hawkins *et al.* (2014), is recommended by MMO. UWN contours for this threshold should also be presented on the relevant figures as appropriate. Presenting fewer, more relevant, UWN contours will make the modelling presented much clearer.

4.7 Habitat Suitability Assessments for Herring and Sandeel

4.7.1 The MMO is content that the seabed sediments within the Morgan Array Area are generally not high value as herring spawning habitat based on the classification of habitat suitability for herring presented in Figure 2 (Volume 2, Chapter 3). Both site specific and supporting particle size analysis (PSA) data characterise sediments as being 'unsuitable' as herring spawning habitat. However, Figure 3.2 (Volume 2, Chapter 3) shows that outside and to the north of the Morgan boundary, there is an area where broadscale seabed sediment data classifies the habitat as 'preferred' Sandy Gravel. Although there is no PSA data for this area to ground-truth this characterisation, these sediments are overlapped by both high and low intensity spawning grounds for herring, according to Coull *et al.* (1998). Although herring may not be actively spawning within the Morgan Array area, there will be herring spawning taking place across the active spawning ground in the vicinity of the project.

4.7.2 The broadscale seabed sediment data presented in Figure 3.3 (Volume 2, Chapter 3) shows that the Morgan Array area overlies a matrix of preferred marginal, as well as some unsuitable, sediment types for sandeel. The MMO highlighted within the PEIR that this characterisation is supported by site-specific PSA data. Given there is mixed potential for sandeel to be inhabiting sediments within the array area, the MMO recommends that the habitat suitability assessment is strengthened, either by presenting a 'heat' map following the MarineSpace method for sandeel or by incorporating the additional data layers used in the MarineSpace method into the current sandeel habitat suitability assessment.

4.7.3 The MMO requested at the PEIR stage that the habitat suitability assessment should be adapted to include 'heat' maps of potential herring spawning habitat and potential sandeel habitat following methods described by MarineSpace (2013a) and (2013b), and updated versions of these methods are now available as per Reach *et al.* (2023) and Kyle-Henney *et al.* (2023). MMO notes that an adequate 'heat' map for herring using a Kernel density map of aggregated NINEL herring larval data, has been provided. For sandeel, the MMO recommends producing two layered maps to accompany the habitat suitability assessment, the first of which presents sediment

classes for sandeel across the region with site-specific and wider regional PSA data overlaid to clearly present the availability and suitability of habitat for sandeel in the vicinity of the array. The second of these layered maps should present the spawning and nursery grounds for sandeel as per Coull *et al.* (1998) and sandeel presence data derived from the OneBenthic Portal to provide an indication of sandeel presence in the region.

4.7.4 The MMO notes that the table of key species (Table 3.11, Volume 2, Chapter 3) indicates there are no herring spawning grounds overlapping the boundary of the array area, however the aggregated herring larvae density presented in Figure 3.4 (Volume 2, Chapter 3) clearly indicates an active herring spawning ground located within 10km of the boundary. The MMO raised at the PEIR stage that this table (3.11) presents a narrow reflection of spawning and nursing activity in the area surrounding the array and given the mobility of fish. The MMO considers that it is not an appropriate spatial scale against which to screen the presence of spawning and nursery grounds. The MMO recommends the table of key species (Table 3.11, Volume 2, Chapter 3) should be amended to reflect the presence of spawning and nursery grounds within the study area (i.e., the wider Irish Sea region), rather than only presenting those which overlap the project boundary.

4.7.5 The impacts scoped into the assessment (Table 3.7 Volume 2, Chapter 3) (Annex 7.1) are consistent with those scoped in at PEIR stage. The MMO has previously recommended that long-term alterations should be considered as permanent, as the worst-case scenario is that scour protection and foundation infrastructure is not removed following project decommissioning. This would represent a permanent alteration to the habitat during and beyond the project's lifetime. The MMO recommends that this is revised.

4.7.6 The MMO is content with impacts which have been scoped out of further assessment detailed in Table 3.8 (Volume 2, Chapter 3).

4.7.7 The MMO is of the opinion that the evidence and data sources used to inform the desk-based assessment are generally appropriate for this purpose and are consistent with those used to support other applications of a similar scale and nature.

4.8 Shellfish Ecology

4.8.1 The MMO has no comments to make in relation to receptors which have been scoped out and not considered within the ES with regards to shellfish ecology as detailed in Table 3.8. Volume 2, Chapter 3.

4.8.2 The MMO notes that no mitigation measures are included for shellfish. The MMO considers this to be appropriate as no impacts were identified as causing a significant negative impact on shellfish.

4.8.3 The MMO considers that there are no outstanding concerns in relation to this application in relation to shellfish.

4.9 Underwater Noise

4.9.1 The MMO considers that the relevant potential impacts of underwater noise on marine receptors have been scoped in.

Comments on Volume 3, Annex 3.1 Underwater sound technical report (document reference F3.3.1)

4.9.2 The report includes a detailed presentation of the acoustical properties of the sediments that were allegedly used for the calibration of the propagation modelling, with the depth variability according to various geological layers (Table 1.23). The MMO advises that the Weston model used for calculating the propagation loss in Table 1.22 does not explicitly include a variability with depth of the sediment acoustic properties, but instead condenses these into a single parameter, namely the seabed bottom loss (the parameter α in Table 1.22 formulae, which is distinct from the attenuation coefficients in Table 1.23). The MMO considers that it is not clear how this parameter α was calculated or estimate based on the properties of Table 1.23 and request further clarification on this matter.

4.9.3 There is mention of the calibration of the Weston model (paragraph 1.8.2.2 of Volume 3, Annex 3.1). The adjustments and calibration represent an in-depth level of technical detail which are specific to the chosen propagation model. However, what is important is the end result of this process, namely the actual predictions of the propagation loss model, which serve both as a basis for modelling the various noise levels and impact ranges and to compare against data from future noise monitoring. The MMO requests that these are included in the form of plots of received levels versus range, for chosen transects. Alternatively, map plots of the SELss would also display the spatial variability of the noise levels.

4.9.4 As previously requested at PEIR stage, the MMO requests that a received level versus range curve/plot for a given transect be provided in Volume 3, Annex 3.1.

4.9.5 The MMO agrees with the conclusions from paragraph 1.7.4.12, in relation to concurrent piling, in that minimum separation between two piling sources will likely result in higher noise levels around these piling locations, while maximising the source separation will reduce the overlap of the impacted areas around these two locations. However, the relevant measure of the potential impacts is the total impacted area around both piling locations, and the interplay of these two antagonistic effects is complex. This makes it difficult to establish a priori which source separation distance maximises this total impacted area. More comments are provided in 4.9.6 – 4.9.8.

4.9.6 The MMO considers that as relevant noise levels are relatively low and consequently the impacted areas are large, the area overlap can be the dominant factor. Therefore, maximum separation often results in the largest total impacted area. In the case of the injury effects, it is less clear by how much the effect range will increase when having the two sources in close proximity, and whether the corresponding injury area is greater than the sum of the individual injury areas when assuming a large source separation.

4.9.7 The MMO compared the SELcum results for marine mammals and the concurrent pin pile installation at 3,000 kJ (Table 1.41) against corresponding results for the single pin pile installation (Table 1.35). The MMO observes that the area for the concurrent piles scenario is slightly less than twice the area for a single pile scenario. This suggests a scenario with maximum separation between sources may result in a larger permanent threshold shift (PTS) total area. The MMO is therefore of the opinion that the worst case could potentially be a one of the 'intermediate' separation of sources when there could be a significant summation of the noise levels from the two sources but without a large overlap of their effected areas.

4.9.8 The point made in 4.9.7 is evidenced to a greater extent in the case of SELcum Temporary Threshold Shift (TTS) impacts. The low frequency cetaceans (LF) predicted impact range for the concurrent piling scenario (Table 1.41) is only slightly larger than the corresponding range for a single pile (Table 1.35) (40.1km versus 37.7km, or about 5% increase) which means that the total TTS impact area from two piles at maximum separation will likely exceed the TTS area of the concurrent scenario that was assumed to be the worst case.

4.9.9 The MMO cautions against the assumption that the limited selection of concurrent scenarios (two scenarios representing minimum and maximum piling location separation) considered within the Underwater Sound Technical Report (Volume 3, annex 3.1) would capture the worst-case scenario in a defined manner. Additionally, the MMO considers that if only two scenarios are considered, then it is recommended that a full investigation of all potential impacts is conducted and then the worst case is decided and reported accordingly.

4.10 Offshore Ornithology

4.10.1 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 DMLs.

4.11 Commercial Fisheries

4.11.1 It is likely that there will be an impact to fishing operations and to other legitimate users of the sea, as temporary exclusion zones will be in force around the worksite for the duration of any proposed works. This could result in temporary restrictions of access to fishing grounds or navigation routes. The MMO notes the inclusion of such safety zones within ES Volume 2: Chapter 6: Commercial Fisheries.

4.11.2 The MMO defers to the National Federation of Fishermen's Organisations 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 DMLs.

4.12 Shipping and Navigation

4.12.1 The 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 securing any mitigation, monitoring or other conditions required within the DMLs.

4.13 Marine Archaeology and Cultural Heritage

4.13.1 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.

4.14 Seascape, Landscape and Visual Resources

4.14.1 The MMO defers to NE as the SNCB, along with HE and the Local Planning Authorities on matters of Seascape, Landscape and Visual Resources and supports any comments raised. The MMO will continue to be part of the discussions relating to securing any mitigation and monitoring or other conditions required within the DMLs.

5 Other Application Documents

5.1 Outline Marine Mammal Mitigation Protocol (MMMP)

5.1.1 It is noted that Section 1.8.2.3 of the MMMP (J17) refers to noise abatement systems (NAS) being required for high order (HO) detonation for UXO sizes larger than 130kg. The MMO advises that NAS will be required for all HO clearance events regardless of UXO size. The MMO therefore recommends that this is clear in the MMMP and UWSMS.

5.2 Underwater Sound Management Strategy (UWSMS)

5.2.1 Section 1.6.2.4 of the UWSMS (J13) refers to the MMMP (J17) which details the primary and tertiary mitigation which mitigates impacts up to a clearance of 130kg. However, for UXO sizes larger than 130kg the use of further sound abatement measures may be considered as an option and refined post-consent as part of the final UWSMS. As per point 5.1.1 NAS (Bubble curtain) will be required for all HO clearance events regardless of the UXO size. MMO recommend that this is made clear in the UWSMS.

5.3 Outline Fisheries Liaison and Coexistence Plan

5.3.1 The MMO welcomes and notes that an Offshore Fisheries Liaison Officer (OFLO) will be appointed, alongside a Company FLO and a Marine Coordinator for Morgan OWF.

5.3.2 Advice should be sought via the FLO when the timetable of works is known so that the local industry can provide real-time advice.

5.3.3 The MMO would note that the MMO will not act as arbitrator in regard to compensation and will not be involved in discussions on the need for or amount compensation being issued. This needs to be made clear within the Outline Fisheries Liaison and Coexistence Plan.

5.4 Outline Offshore Written Scheme of Investigation (WSI)

5.4.1 The MMO defers to HE on the Outline Offshore WSI and supports any comments raised. The MMO will continue to be part of the discussions relating to any conditions within the DML.

5.5 Habitats Regulations Assessment

5.5.1 The MMO defers to and supports NE as SNCB regarding the derogation case proposed.

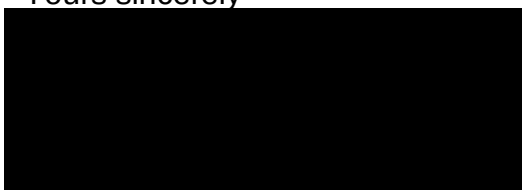
5.5.2 The MMO will keep a watching brief on these documents and would ask for any compensation requirements to be included within the DCO at this stage to ensure all parties have reviewed the wording, should the Secretary of State be minded to include compensation.

5.6 Marine Conservation Zone Screening Report

5.6.1 The MMO defers to and supports NE as SNCB regarding impacts to Marine Conservation Zones for the Project.

5.6.2 The MMO will keep a watching brief on this document and discussions in relation to MCZs and would remind the Applicant that any mitigation secured through these assessments will need to be included within the conditions on the DML.

Yours sincerely



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7 Annex

7.1 Table 3.7 Extracted from ES Volume 2, Chapter 3: Fish and Shellfish Ecology, Document ref: F2.3 Potential impacts from the construction, operation, and decommissioning of Morgan Generation OWF, as identified by the applicant.

Activity	Potential effects scoped into the assessment
Construction phase	
Jack-up events, cable installation, sandwave clearance deposition, anchor placements, cable removal	Temporary habitat loss/disturbance Underwater sound during the construction phase impacting fish and shellfish receptors Increased suspended sediment concentrations (SSCs) and associated sediment deposition Long term habitat loss Introduction of artificial structures and colonisation of hard structures Disturbance/remobilisation of sediment-bound contaminants Injury due to increased risk of collision with vessels (basking shark only)
Piling for offshore substation platforms (OSPs) and wind turbine foundations, geophysical site investigation surveys, UXO clearance	
Vessel traffic and other sound-producing activities	
Sandwave clearance, foundation installation and cable installation	
Foundations and scour protection, cable protection and cable crossing protection	
Vessels movements	

Document Reference: F2.3

Page 39 of 268

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

Activity	Potential effects scoped into the assessment
Operation and maintenance	
Jack-ups at OSPs and wind turbine and associated foundations and cables, seabed preparation	Temporary habitat loss/disturbance Increased SSCs and associated sediment deposition Long term habitat loss EMFs from subsea electrical cabling Introduction of artificial structures and colonisation of hard structures Disturbance/remobilisation of sediment-bound contaminants Injury due to increased risk of collision with vessels (basking shark only)
Vessel traffic and other sound-producing activities	
Repair of cables	
Foundations and scour protection, cable protection and cable crossing protection	
Presence of cables	
Vessels movements	
Decommissioning	
Jack-up events, cable removal, anchor placements	Temporary habitat loss/disturbance Increased SSCs and associated sediment deposition Long term habitat loss Introduction of artificial structures and colonisation of hard structures Disturbance/remobilisation of sediment-bound contaminants Injury due to increased risk of collision with vessels (basking shark only)
Vessel traffic and other sound-producing activities	
Suction caissons removal, cables removal	
Scour and cable protection left *in situ*	
Vessels movements	