Norfolk Vanguard Offshore Wind Farm

MMO Statement of Common Ground

Appendix 1 – Relevant Representation Position

Applicant: Norfolk Vanguard Limited
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Deadline 7

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Photo: Kentish Flats Offshore Wind Farm

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12/02/2019	04D	Submission for Deadline 4	GK	GK	RS
02/05/2019	05D	Submission for Deadline 7	GK	GK	RS

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1 INTRODUCTION

1. This Appendix to the Norfolk Vanguard Marine Management Organisation (MMO) Statement of Common Ground (SoCG) provides detailed responses from the Applicant in relation to the MMO's Relevant Representation and provides an overview of the current position on each item. The SoCG and this Appendix will be remain live throughout the examination process as the Applicant and MMO work to resolve outstanding issues.

2 CURRENT POSITION IN RELATION TO MMO'S RELEVANT REPRESENTATION

The Applicant's Reference	Subtopic	MMO relevant rep comment no.	MMO Relevant Rep Comment	Applicant position at Deadline 7	MMO Position at Deadline 7	Status Summary
OS215	General comments	1.1	Since the submission of the Preliminary Environmental Information Report (PEIR), Vanguard has made the following decisions: to use High Voltage Direct Current (HVDC) (meaning no cable relay station is required); the long option for horizontal direction drilling (HDD) works; the construction window has reduced from 7 years to 4 years and the maximum number of turbines set at 200. The MMO welcomes these clarifications however still feels there is considerable uncertainty regarding the impacts of construction, especially with regard to phased construction and areas of construction with regard to designated areas.	Overarching comment, no response	N/A	N/A
OS216	General comments	1.2	It is acknowledged that worst case parameters are provided for each topic chapter (Chapters 8-31). However, no worst case summary for the whole project has been provided as was requested by the Secretary of State. This would allow the impact of the project as a whole with in-combination factors to be assessed. Similarly, the total amount of cable protection has been included for key areas but it is unclear what the worst case scenario quantities for the project is as a whole.	The worst case for some impacts/receptors are different from others and therefore it is not possible to define a single worst case scenario for the whole project. The total length of the cables and the maximum volume of cable protection are provided in Schedule 1 Part 3 of the DCO. In addition the Outline Scour Protection and Cable Protection Plan confirms the volumes and areas of cable protection	It is agreed the information provided is sufficient, refer to Secretary of State as this was in the initial consultation. This is found in chapter highlighted in chapter 5 of the ES. Table 5.2 (on page 11) Consultation Responses.	It is agreed the information provided is sufficient, refer to Secretary of State as this was in the initial consultation. This is found in chapter highlighted in chapter 5 of the ES. Table 5.2 (on page 11) Consultation Responses
OS217	General comments	1.3	The MMO acknowledge that impacts of operation and maintenance (O&M) activities are incorporated into each chapter. It would be helpful to have a summary of O&M impacts gathered together in one table specifically all parameters and instances (e.g. component replacement) so longer term impacts can be assessed effectively.	The Applicant will submit an updated version of the Outline Offshore Operations and Maintenance Plan (document 8.11, Version 2) at Deadline 7.	To be confirmed following review of the Outline OOMP (document 8.11, Version 2) to be submitted at Deadline 7	To be confirmed following review of the Outline OOMP (document 8.11, Version 2) that will be submitted at Deadline 7
OS218	General comments	1.4	The O&M activity of J-tube and ladder cleaning typically involves either jet washing marine growth and bird guano off turbine foundation pieces, or cutting the growth from around the J-tube. The Environmental Statement (ES) project description does not detail the number of occasions this would occur per annum, or when the activity may occur, or the volumes of material being deposited in the marine environment. Therefore in order for these activities to be considered as part of the consented works this information must be provided.	Cleaning of offshore infrastructure would involve jet washing with seawater and therefore only natural materials would enter the marine environment i.e. marine growth, bird guano and seawater. No chemicals would be used in this process. The indicative number of operational visits are included as part of the operation and maintenance activities described in Chapter 5, section 5.4.18.The Outline OOMP also includes a summary of the offshore operation and maintenance activity.	It is agreed the information provided is sufficient	It is agreed the information provided is sufficient
OS219	General comments	1.5	The table on pages 7-9 of the Outline Offshore Operations and Maintenance Plan (Document 8.11) details the number of instances of cable repair required. There appears to be some discrepancies between this information and amount of cable repairs detailed in the ES. The table details a maximum of 5 cable failures per year, 2 for array cables, 1 for interconnector and 2 for export cables. Whereas the ES project description paragraph 253, page 70, details 1 export cable failure, 2 array cable failures and 1 interconnector failure per year. The ES does not fully detail the length of cable repair for all cables, it only outlines the information for the array cables which are detailed at 6km (para 257 page 71), this is significantly larger than the 600m implied by the outline O&M plan. The MMO therefore recommend this is checked and revised.	The Applications Document Errata (document reference Pre-ExA; Errata; 9.4) has now been submitted to the Planning Inspectorate which clarifies there would be a maximum of 4 failures per year: • 2 x array cables (assume the whole length of an array cable is replaced – max length 6km based on turbine spacing) • 1 x Interconnector cables (assume a few hundred metres subject to repair) • 1 x Export cables (assume 300 metres subject to repair) This total of 4 cable failures per year has been assessed in each relevant ES Chapter (e.g. Chapter 10 Benthic Ecology, see Table 10.12 Impacts 2A and 2B)	MMO have reviewed the Errata, the difference in failures has been updated.	Agreed, subject to the close out of comment 1.3
OS220	General comments	1.6	No summary of engagement with the MMO has been provided nor has any clear indication of how MMO feedback provided during the consultation out with specific topic chapters on the PEIR have been addressed. The MMO has had further engagement with the project regarding the DCO and Deemed Marine Licenses (DML), as well as the Site Integrity Plan (SIP) (regarding the Southern North Sea potential Special Area of Conservation (pSAC)). It is not easily discernible how our feedback has been addressed. The MMO therefore requests that the applicant makes reference to these previous engagements and agreements.	A summary of engagement is included in the SOCG. MMO feedback on the DCO has been taken on board where possible and discussions are ongoing regarding the comments provided in the RR. A revised DCO was provided at Deadline 2	It is agreed the information provided regarding consultations is sufficient and that discussions regarding the DCO are ongoing	It is agreed the information provided is sufficient

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OS221	General comments	1.7	The project has provided some basic information in The Planning Statement (Document 8.02) as to how Vanguard complies with the overarching objectives of the Marine Policy Statement and the East Inshore and East Offshore marine plans. This information is again referenced in The Legislative Context chapter (Chapter 3 – 3.3.2.7) of the ES. However, the applicant fails to explain how the project complies. In implementing marine plan licensing, the MMO would require a further assessment of compliance in this regard. Further information can be found at the MMO's Marine Information System: http://mis.marinemanagement.org.uk/	A checklist of the East Inshore and East Offshore marine plans objectives is provided in Appendix 1.2 (document reference ExA; FurtherWQApp1.2; 10.D4.6) of the Applicant's Response to the Examining Authority's Further Written Questions	The MMO is satisfied with the policy checklist	Agreed
OS222	General comments	1.8	Unexploded ordnance (UXO) detonation is detailed within the ES but this pre-construction activity is not included within the DCO/DMLs. This therefore means that it would not be licensed and the applicant should be aware that a separate Marine Licence would need to be obtained. The nature of this activity also means that a European Protected Species (EPS) licence for both disturbance and/or injury will need to be acquired prior to any UXO detonation works.	UXO clearance is not currently included in the DCO; this will be licenced separately based on the extent and nature of UXO present, however it has been considered in the EIA at this stage for completeness.	Agreed providing the DCO does not include any ancillary working assessed in the ES	Agreed
OS223	General comments	1.9	The indicative construction programme should include pre-construction activities such as UXO, sea bed preparation and scour protection to fully understand the timescales involved.	The Applicant will provide an updated construction programme.	To be confirmed following review of the updated construction programme.	Discussion ongoing
OS224	General comments	1.10	The maximum hammer energy of 5,000kJ as assessed in the ES should be detailed within the design parameters on the DCO and all DMLs.	This was incorporated in the updated DCO at Deadline 2	The MMO is satisfied that this has been added to the updated DCO. The MMO point the applicant to the response in 2nd ExA question 4.11	Agreed
OS225	General comments	1.11	It is noted the disposal volumes given in the ES chapters assessing impacts match the site characterisation report however they do not match reduced values in the DCO/DML. Part 3, Details of Licensed Marine Activities, 1(d) states the total disposal volume of 39,732,566m3. However Tables 4.1 and 4.2 on page 15 and 16 of the disposal site characterisation report provides the total volume as 50,607,570m3 for the offshore wind farm site and 3,600,000m3 for the export cable with 402,320m3 drill arisings disposal. In addition, page 33 of the ES project description, lists 176,715m3 of drill arisings and there is no information relating to the other disposal quantities. The MMO recommends this is revised and amended. It is also recommended that disposal volumes are separated according to type of material to ensure accurate assessment of impact. The DCO/DML should reflect the maximum in the ES with specific limits for volumes within the Haisborough, Hammond and Winterton (HH&W) SAC including the area of impact.	39,732,566m^3 reflects the disposal volumes associated with the generation assets (Schedules 9 and 10 of the DCO). 11,475,000m^3 reflects the disposal volumes associated with the transmission assets (Schedules 11 and 12 of the DCO). Therefore, the total for the entire offshore Order limits would be 51,207,566.73m^3. The draft DCO has been updated to include this total as well as the volumes referenced in the DMLs (submitted at Deadline 2). This total has been assessed in the ES (e.g. ES Chapter 10 Benthic Ecology, Table 10.12) based on 50,607,566m^3 disposal in the offshore	The MMO welcome the maximum figures for disposal volumes and drill arisings have been updated in the dDCOv2. The MMO request the disposal volumes and drill arisings for the SAC are defined within the DCO.	Agreed

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				wind farm sites and 600,000m^3 disposal in the offshore cable corridor (totalling 51,207,566m^3) The ES also assesses 3,000,000m^3 of potential sediment arising in relation to trenching works in order to provide a conservative assessment of suspended sediment, however as this sediment would not be raised, (as it would for pre-sweeping/dredging) it does not require disposal and is therefore not referred to in the dDCO Drill arisings have been assessed in the ES but would be smaller in quantity than seabed preparation volumes for gravity foundations and are therefore not a component of the total volumes in the DCO. There will be no drilling within the SAC.		
OS226	General comments	1.12	The description of mitigation is still of a general nature, relying in some cases on plans such as the Marine Mammal Mitigation Plan (MMMP) to be agreed post consent. The MMO considers there are still a number of outstanding concerns regarding mitigation which affects the confidence of the MMO that impacts can be adequately mitigated against.	Natural England stated in their Deadline 4 submission: "Following further internal discussion, Natural England is satisfied that the soft-start protocol is fit for purpose."	The MMO defers opinion to Natural England in relation to mitigation.	Agreed, noting deferred to Natural England
OS227	General comments	1.13	With particular reference to underwater noise and disturbance/injury to protected species in designated areas, recent offshore wind farm development experience and the introduction of new underwater noise management guidelines has meant mitigating against the impacts of underwater noise is a major challenge, e.g. EPS licenses are now required for injury as well as disturbance. The MMO feels there is a number of outstanding questions regarding effects and potential mitigation especially in respect to in-combination effects. Feedback at 4.8.1 to 4.8.7,regarding the SIP, queries Vanguard's assertion that there is confidence that in-combination effects can be managed and mitigated against effectively The MMO has already fed back concerns in this regard to Vanguard and will require more consideration and engagement.The MMO considers that this is a major outstanding concern which should have been better addressed through the pre-application process, and now requires resolution during the pre-examination / examination phase. It is a concern for the MMO that.,should this issue not be resolved pre-consent, significant issues may remain for the MMO and its advisers post-consent in administering any future DMLs or separate Marine Licenses for the project.	Norfolk Vanguard Ltd acknowledge that the MMO has concerns regarding the SIP approach but note that this is a wider strategic issue for the Regulators. The SIP approach was agreed for the consented East Anglia THREE project and is now being requested for all projects. It has also been identified as a requirement in the SNS cSAC Review of Consents The In Principle SIP (document 8.17) provides an appropriate level of detail at this stage, in accordance with the level of detail provided for other consented projects (i.e. East Anglia THREE). The final SIP will provide further details on mitigation including: • What the measure is, and how it would avoid or reduce effects; • How it would be implemented and by whom; • The degree of confidence in its likely success; • The timescale of when it would be implemented, maintained and managed; • How the measure would be secured, monitored and enforced; and • How any failures would be rectified. This information, provided in the final SIP, will be based on the final design of the project and latest guidance prior to construction.	In accordance with Section 1.1.1 of the MMO Deadline 6 response, the current requirement for a Site integrity Plan (SIP) is likely to be sufficient to allow any mechanism to be fully incorporated without need for a variation.	Agreed
OS228	DCO	2.1	Schedule 14 of the DCO details the process for arbitration, which is supported by Article 38. This proposes that any difference shall be referred to and settled in arbitration in accordance with the rules at Schedule 14. In comparison to previously used articles for arbitration, the process sets out significantly different conditions and timeframes, which the MMO consider to be inappropriate and unacceptable therefore recommend to be removed from the DCO and the DMLs. Further justification for the MMO's stance can be found in the DCO Interpretations and Articles section below (2.2 to 2.7)	The Applicant refers to its submissions at ISH5. Notwithstanding the Applicant's view that the MMO should be subject to arbitration for the reasons previously identified, the Applicant is keen to agree a pragmatic solution which is workable for the Applicant and the MMO. Therefore, the Applicant has removed the MMO from arbitration in return for the deemed discharge provision in the DMLs. For a further explanation, the Applicant would refer the MMO to the Applicant's response to Q20.139 submitted at Deadline 4 (Doc Ref: ExA;FurtherWQ;10.D4.) and the Applicant's summary of oral submissions submitted at Deadline 6 (Doc Ref: ExA;ISH5;10.D6.10).	The MMO maintain the position set out in column F and the additional comments during ISH3 and deadline 3 response. The MMO would also highlight that Tilbury 2 decision has been determined with a decision being made such that the arbitration clause didn't apply to any approval required under the DMLs. The ExA's Recommendation Report to the Secretary of State found in favour of the MMO for reasons stated in its submissions, noting: "The MMO stated that it strongly opposed the inclusion of such a provision, based on its statutory role in enforcing the DML. According to the MMO, the intention of the PA2008 was for DMLs granted as part of a DCO in effect to operate as a marine licence granted under the MCCA2009. There was nothing to suggest that after having obtained a licence it should be treated any differently from any other marine licence	Ongoing discussion

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					granted by the MMO (as the body delegated to do so by the SoS under the MACAA). Having considered the arguments of the Applicant and the MMO, the Panel finds in favour of the MMO in this matter for the reasons stated in the paragraph above. Accordingly, the Panel recommends that paragraph 27 is deleted from the DML at Schedule 9 of the draft DCO." The MMO would also point the applicant to the recent Hornsea project 3 ExA schedules of changes to DCO. The ExA have amended Article 37 to exclude the MMO from the arbitration process. Article 38 (proposed appeal process) has also been removed by the ExA. The MMO note that the applicant has amended Article 38 with the addition of deemed discharged conditions in condition 15. The MMO feel this is not acceptable and the deemed discharge condition should be removed further information can be found in the MMO deadline 6 response (REP6-030)	
OS229	DCO	2.2	Article 36 proposes that any difference shall be referred to and settled in arbitration in accordance with the rules at Schedule 14 of the DCO. In comparison to previously used articles for arbitration, Article 38 sets out significantly different conditions and timeframes, which the MMO consider to be inappropriate and therefore recommend should be amended or removed from the DCO and DMLs. The applicant's reasoning for departing from the model provision and for including the extended clause is that "this approach will provide a more bespoke and relevant arbitration process. This follows the approach which has been taken on the draft Hornsea Three Offshore Wind Farm Order".	See response to comment 2.1	See previous	Ongoing discussion
OS230	DCO	2.3	It is the MMO's opinion that the proposal goes beyond providing greater relevance. Arbitration provisions tend to follow model clauses and be confined to disputes between the applicant/beneficiary of the DCO and third parties e.g. in relation to rights of entry or rights to install/maintain apparatus. The MMO strongly questions the appropriateness of any regulatory decision or determination to be made subject to any form of binding arbitration as set out by Article 38 and Schedule 14. It is the MMO's opinion that Article 38 and Schedule 14 would shift the MMO's decision-making responsibility from the hands of the regulator with primary responsibility for administering the marine licensing regime to an independent arbitrator. This would be contrary to the intention of Parliament set out in the Marine and Coastal Access Act 2009 and would potentially usurp the role of the MMO as a regulator. The MMO therefore request removal of Articles 38 from the DCO and DMLs. Please find below the detailed reasoning is support of this request.	See response to comment 2.1	See previous	Ongoing discussion
OS231	DCO	2.4	When the MMO was created by the Parliament to manage marine resources and regulate activities in the marine environment, the Secretary of State delegated his/her functions to the MMO under the MCAA 2009. As both the role of the Secretary of State in determining DCO applications and the role of the MMO as a regulator for activities in the marine environment are recognised by the PA 2008, the responsibility for the DML passes from the Secretary of State to the MMO once granted. Here the MMO is responsible for any post consent enforcement actions, any post consent monitoring, and any variations, suspensions or revocations associated with the DML. In doing so, it was not the intention of Parliament to create separate marine licensing regimes following different controls applied to the marine environment. In fact, one of the aims of the PA 2008 is the provision of a 'one stop shop' for applicants seeking consent for a national significant infrastructure project. The new regime allows for the applicant to choose whether to include a DML issued under MCAA within the DCO provision, or apply to the MMO for a standalone licence covering all activities in the marine environment. In any case, it is crucial that consistency is maintained between DMLs granted through the provision of a DCO and licenses issued directly by the MMO independent of the process.	See response to comment 2.1	See previous	Ongoing discussion

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OS232	DCO	2.5	As previously stated it is the MMO's opinion that the referral to arbitration in situations where 'difference' may arise, goes against what was intended by Parliament. Looking at the draft DMLs, the MMO feels that the 'difference' to which arbitration would be applied are those situations in which the MMO is required to give further consent or approval. These situations appear to arise when small re-determinations of aspects of the marine license process have to take place. A specific example here are situations where the applicant proposes changes to the way in which the already authorised activities will be carried out and effects have not been considered as part of the ES. Generally, these are technical determinations and the MMO feels that the MMO is better placed to make technical determinations than an arbitrator appointed under the DCO. Furthermore, in the case of any disagreement which may arise between the applicant and the MMO throughout this process, the existing appeal routs i.e. via the MMOs complaint procedure, by complaint to the Ombudsman, or ultimately via Judicial review should be taken. It is inappropriate for the DCO to apply arbitration to these decisions.	See response to comment 2.1	See previous	Ongoing discussion
OS233	DCO	2.6	It remains unclear to the MMO, why Vanguard would like to apply arbitration to 'differences' which may arise post-consent between itself and either the Secretary of State or the MMO. It is recognised in the explanatory memorandum to the draft order, that the wording in Article 38 is a departure from the model provision. It is stated that the aim for this amendment is to provide a more bespoke and relevant arbitration process, however the MMO feel that the wording goes much further than simply providing relevance. It appears that the arbitration clause included allows a more widely application than in the case if the model clause were to be used. The model clause is set out to introduce arbitration in situations where differences arise between the applicant and any third parties who could be affected by the development, for example situations where third parties premises will be required. The model clause do not extend the use of arbitration to differences which could arise between the applicant and the Secretary of State or the MMO as a regulator for the granted DML. It is the MMO's view that this was not intended on the proper construction of the PA 2008 and the MCAA 2009.	See response to comment 2.1	See previous	Ongoing discussion
OS234	DCO	2.7	The arbitration schedule as set out in Schedule 14 describes a private process and require the agreement that all discussions and documentation will be confidential and not disclosed to third parties without written consent. The MMO would like to highlight that the regulatory decisions should be publically available and open to scrutiny. In many cases, members of the public and Non-Governmental Organisations may make representations in relation to post-consent matters. Ordinarily, their views would be considered by the MMO and would be able to follow and challenge the decision making. A private arbitration to resolve post consent disputes would cut out the public and reduce transparency and accountability.	See response to comment 2.1	See previous	Ongoing discussion
OS235	DML	2.8	Vanguard held discussions with the MMO regarding the proposed DCO and DMLs culminating with a meeting on the 17 April 2018. At that time, the MMO provided feedback on some points which do not seem to have been addressed for this submission. These comments have been reiterated within this representation.	Addressed by detailed comments and associated responses	N/A	N/A
OS236	DML	2.9	Vanguard's DMLs consist of four deemed marine licences: two for the generation assets and two for the transmission assets. Presumably this is to facilitate a phased development however it also opens the possibility of a transfer of benefit. This is possible, even if the intention at this time is to share infrastructure with the future windfarm Norfolk Boreas. If a transfer of benefit were to happen, it is unclear what mechanisms would be in place to ensure two different windfarm developers working in the same area work in cooperation especially with regard to in-combination effects. This is considered a potential risk to the project by the MMO.	N/A	The MMO have reviewed this position and is now content with the structure of the DMLs	Agreed

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OS237	DML	2.10	During the meeting in April, the MMO informed Vanguard that all pre-construction monitoring reports must be submitted to the MMO six months before commencement and not four as described in some conditions. Conditions relating to plans in the draft DCO included as part of this submission, with the exception of the MMMP still have a timescales of approval stating four months before construction. It is the MMO's experience that four months to review, consult and refine plans possibly multiple times is not adequate and repeats earlier comment that all pre-construction monitoring reports must be submitted to the MMO six months before commencement of works.	The Applicant is currently considering this further.	The MMO's position has not changed as stated previously.	Ongoing discussion
OS238	DML	2.11	Condition 14(j) As previously mentioned, a summary of all operation and maintenance activities is required to fully assess the activities and their impact at operational stage. Part 3 Requirement 2 (1) (b) max hub height states 200m but the ES project description page 21 table 5.3 states 198.5m. This should be revised and amended.	N/A	The MMO is satisfied that this has been correct in the updated DCO.	Agreed
OS239	DML	2.12	Part 3, Requirement 5 With regard to cable protection, the area of impact should be stated within the DCO/DML as well as the volume. At present this section only refers to the volumes. This also applies for scour protection.	Table 1 of the Outline Scour Protection and Cable Protection Plan includes the scour protection parameters for individual foundations.	The MMO agree the maximum volume and area for cable protection have been included in the DCO. The MMO still request cable protection volumes and areas within the SAC to be defined on the face of the DML. The MMO will review the updated Outline Scour Protection and Cable Protection Plan to be submitted at Deadline 7	Ongoing discussion
OS240	DML	2.13	Part 3, Requirement 11 With regard to scour protection, the DCO/DML provides figures for individual turbines, while the ES provides total figures for the entire project. The MMO recommends scour protection is defined for individual structures in the DCO/DML however this should be aligned in the ES.	Table 1 of the Outline Scour Protection and Cable Protection Plan includes the scour protection parameters for individual foundations.	The MMO position remains as stated in the Relevant Rep	Ongoing discussion
OS241	DML	2.14	Part 3, condition 2 (1) (e) Cable crossings should be defined in the DCO/DML and limited to the number assessed in the ES.	The MMO confirmed during ISH4 and in the written summary that this is no longer required.	The MMO welcome the amount of cable protection within the DCO. The MMO is content that the number of cable crossings does not need to be on the face of the DML on the basis of reasoning in Section 2.5.4 of the MMO's Deadline 6 submission.	Agreed, on the basis of reasoning in Section 2.5.4 of the MMO's D6 submission
OS242	DML	2.15	Part 4, condition 8 (1) The total maximum array cables, cable protection or cable crossings should be defined in the condition as described in the ES.	The MMO confirmed during ISH4 and in the written summary that this is no longer required	The MMO agree the maximum array cables and protection have been included in the DCO. The MMO is content that the number of cable crossings does not need to be on the face of the DML on the basis of reasoning in Section 2.5.4 of the MMO's Deadline 6 submission. The MMO still requests the cable protection amounts for the HH&W SAC are defined within the text of the DCO/DMLs.	Ongoing discussion
OS243	DML	2.16	The MMO recommends that a condition is included to restrict the maximum hammer energy to the worst case scenario (5,000kJ) assessed in the ES. The MMO recommends the following condition wording: In the event that driven or part-driven pile foundations are proposed to be used, the hammer energy used to drive or part-drive the pile foundations must not exceed 5,000kJ	As per comment 1.10 - This was incorporated in the updated DCO at Deadline 2	The MMO is satisfied that this has been added to the updated DCO. The MMO point the applicant to the response in 2nd ExA question 4.11	Agreed

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OS244	DML	2.17	Part 4, condition 9(7) 2.17 Kingfisher Inclusions. The MMO welcomes the inclusion of notification to Kingfishers for commencement and completion of works. However, kingfisher also needs to be informed at the beginning of a major stage of the project, such as operations and maintenance or any works which represent a risk to fishermen and the MMO is working on relevant standard wording at this time. Further information will be provided as soon as possible.	The Applicant understands that this matter is now agreed. The wording is the same as that within the Standard Navigation conditions save that the exact wording in the DCO is tweaked for project specific reasons, for instance to refer to the 'Undertaker' and to refer to fourteen days rather than two weeks as this convention is consistent with the remainder of the DCO/DMLs and avoids confusion with working weeks. The Applicant has also incorporated suggestions from the MMO within the Deadline 4 submission of the dDCO (as referred to in row 36 of the Schedule of Changes). The wording in the DCO is as follows: (7) The undertaker must inform the Kingfisher Information Service of Seafish by email to kingfisher@seafish.co.uk of details regarding the vessel routes, timings and locations relating to the construction of the authorised scheme or relevant part— (a) at least fourteen days prior to the commencement of offshore activities, for inclusion in the Kingfisher Fortnightly Bulletin and offshore hazard awareness data; and (b) as soon as reasonably practicable and no later than 24 hours of completion of construction of all offshore activities. Confirmation of notification must be provided to the MMO within five days.	*The MMO is aware that the wording in column F is different to the wording in the dDCOv2 and proposed wording in the ExA first question 20.78. The correct updated version of the condition wording agreed with MCA is:* *The Kingfisher Information Service of Seafish, must be informed of details of the vessel routes, timings and locations relating to the construction of the authorised project or any part thereof by email to kingfisher@seafish.co.uk :-* *a) at least 2 weeks prior to the commencement of offshore activities, for inclusion in the Kingfisher Fortnightly Bulletin and offshore hazard awareness data, and;* *b) as soon as reasonably practicable and no later than 24 hours of completion of all offshore activities. Confirmation of notification must be provided to the MMO within 5 days.* *The wording in the dDCOv2 as set out below:* *The Kingfisher Information Service of Seafish, must be informed of details of the vessel routes, timings and locations relating to the construction of the authorised project or any part thereof by email to kingfisher@seafish.co.uk :-* *a) at least fourteen days prior to the commencement of offshore activities, for inclusion in the Kingfisher Fortnightly Bulletin and offshore hazard awareness data, and;* *b) as soon as reasonably practicable and no later than 24 hours of completion of all offshore activities. Confirmation of notification must be provided to the MMO within 5 days.* *The MMO are satisfied with the wording within the dDCOv2.*	Agreed
OS245	DML	2.18	Part 4, Condition 12 The MMO recommends that the following condition should be included in Schedule 11 to ensure that no man-made material is disposed to sea. Any man-made material must be separated from the dredged material and disposed of on land.	The Applicant understands that the parties agree with the approach to disposal but the Applicant has amended the condition to clarify the intention of the parties as follows: *(5)The undertaker must ensure that only inert material of natural origin, produced during the drilling installation of or seabed preparation for foundations, and drilling mud is disposed of within site disposal reference [XX] within the extent of the Order limits seaward of MHWS. Any other materials must be screened out before disposal of the inert material at this site.*	The MMO agree with the additional wording on the condition.	Agreed
OS246	DML	2.19	Part 4, Condition 12(4) It is problematic to provide a disposal return by 31 January for a period August to January inclusive. The deadline should be amended to the 15th of the month following the disposal period. Please see the correct wording below: The undertaker must inform the MMO of the location and quantities of material disposed of each month under this licence. This information must be submitted to the MMO by 15 February each year for the months August to January inclusive, and by 15 August each year for the months February to July inclusive.	The disposal dates were amended in the DCO at Deadline 2.	The MMO are satisfied that this has been correct in the updated DCO.	Agreed
OS247	DML	2.20	Part 4, Condition 13(2) The MMO suggest that where the cable route crosses the HH&W SAC, the survey should extend outside the Order Limits to ensure any reef known to be present has been unaffected by the works.	The In Principle Monitoring Plan (document 8.12) refers to the survey including a buffer from the cable installation works. Therefore the survey would stay within the Order limits if the cable route is towards the middle of the corridor or may extend out of the order limits if the route is towards the edge of the corridor. The In Principle Monitoring Plan provides a framework to agree a buffer with MMO prior to construction, based on the final cable positioning.	Agreed this will be agreed via the IPMP	Agreed

The Applicant's Reference	Subtopic	MMO relevant rep comment no.	MMO Relevant Rep Comment	Applicant position at Deadline 7	MMO Position at Deadline 7	Status Summary
OS248	DML	2.21	For the post construction surveys detailed in condition 15.-(2)(a), surveys should also be conducted for a period of 3 years (non-consecutive e.g. 1, 3, 6 or 1, 5, 10) to determine any long term effects within the SAC due to dredging and placement of the export cables and associated cable protection.	The Applicant will submit an updated IPMP (document 8.12) at Deadline 7.	To be confirmed following review of the IPMP (document 8.12)	To be confirmed following review of the IPMP (document 8.12) to be submitted at Deadline 7
OS249	DML	2.22	Part 4, Condition 19(3) The MMO believe this condition should be reviewed as at present it infers that piling activities can continue in the event that the results of the as-built noise monitoring fail to confirm the effectiveness of current modelling and mitigation. We therefore recommend the addition of the following wording: If, after expert review, the results received 6 weeks after the completion of the first four piles are deemed to be unacceptable, then the MMO will look to suspend all further piling activities in the event that the developer has not already voluntarily done so.	The Applicant will submit an updated IPMP (document 8.12) at Deadline 7.	To be confirmed following review of the IPMP (document 8.12)	To be confirmed following review of the IPMP (document 8.12) to be submitted at Deadline 7
OS250	DML	2.23	Part 4, Condition 19(5) The MMO advise that the wording of this condition should be reassessed and suggest the following wording: In the event that driven or part-driven pile foundations are proposed to be used, a marine mammal mitigation protocol (MMMP), including details of soft start procedures with specified duration periods following current best practice as advised by the relevant statutory nature conservation bodies.	The MMMP provides the framework to agree the specific mitigation measures based on the best information at the time and therefore prescriptive wording regarding soft start may be detrimental if this does not reflect Natural England and the MMO's latest guidance at the time of construction	Agree that reference to soft start can be captured in the MMMP rather than the condition	Agreed
OS251	DML	2.24	Schedule 9 and 10 The conditions within the draft DCO for Schedule 9 and 10 (Generation Assets Licence 1 & 2 phase 1 & 2) part 4 (Conditions) 18.-(2) (pre-) and 20.-(2) (post-construction) are adequate as they state that both the pre-and post-construction surveys must, unless otherwise agreed with the MMO, have due regard to, but not be limited to, the need to undertake; in the case of 18.-(2) (a), Appropriate surveys to determine the location and extent of any benthic communities/benthos constituting Annex I reef habitats of principle importance in whole or part inside the area(s) within the [construction] Order limits, and in the case of 20(2) (a), a survey to determine any change in the location, extent and composition of any benthic habitats of conservation, ecological and/or economic importance constituting Annex I reef habitats identified in the pre-construction survey within the areas in which construction works were carried out. However, post construction surveys should also be conducted for a period of 3 years (non-consecutive e.g. 1, 3, 6 or 1, 5, 10 years) to determine any long term effects due to placement of the windfarm.	The Applicant will submit an updated IPMP (document 8.12) at Deadline 7.	To be confirmed following review of the IPMP (document 8.12)	To be confirmed following review of the IPMP (document 8.12) to be submitted at Deadline 7
OS252	DML	2.25	Schedule 11 and 12 Conditions under Schedule 11 and 12 (Transmission assets (Licence 1&2 - phase 1&2) 13.-(2) and 15.-(2) states that the pre- and post-construction surveys must, unless otherwise agreed with the MMO, have due regard to, but not be limited to, the need to undertake appropriate surveys to determine the location and extent of any benthic communities/benthos constituting Annex 1 reef habitats of principal importance in whole or in part inside the area(s) within the Order limits in which it is proposed to carry out construction works. Add to condition (13.- (2)) that where the cable route crosses the HH&W SAC, the survey should extend outside the Order Limits to ensure any reef known to be present has been unaffected by the works.	As per RR comment 2.20, the In Principle Monitoring Plan (document 8.12) refers to the survey including a buffer from the cable installation works. Therefore the survey would stay within the Order limits if the cable route is towards the middle of the corridor or may extend out of the Order limits if the route is towards the edge of the corridor. The In Principle Monitoring Plan provides a framework to agree a buffer with MMO prior to construction, based on the final cable positioning.	Agreed this will be agreed via the IPMP	Agreed
OS253	DML	2.26	Comments made in relation to schedule 9 also apply to schedule 10, similarly all comments made in relation to schedule 11 apply to schedule 12.	N/A	N/A	Agreed
OS254	DML	2.27	The information presented in the In Principle Monitoring Plan (IPMP) does not appear to align with the above conditions, as stated below; 2.27.1 Page 5 paragraph 12 e, 'where no significant impacts, monitoring need not be conditioned though the DMLs'. 2.27.2 Page 11 Paragraph 25, 'Pre-construction and post-construction surveys would be targeted to areas where construction activities are planned and where there is deemed to be potential for Annex I reef based on relevant available data.' 2.27.3 Regarding paragraph 12 e, the MMO advise that monitoring is undertaken on whether the predicted impacts are significant or not, as the purpose of monitoring is to determine whether the impacts predicted within the ES are correct or not. 2.27.4 Regarding paragraph 25, the conditions detailed above are specifically not limited to Annex I habitats therefore this sentence needs to be revised.	The Applicant will submit an updated IPMP (document 8.12) at Deadline 7.	To be confirmed following review of the IPMP (document 8.12)	To be confirmed following review of the IPMP (document 8.12) to be submitted at Deadline 7

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OS255	DML	2.28	The findings of the MMO report titled 'Review of environmental data associated with post-consent monitoring of licence conditions of offshore wind farms, 2014' were inconclusive and based on round 1 wind farms which are not comparable in size to Vanguard. We currently do not know what impact these large Offshore Wind Farms (OWF) have long-term, therefore monitoring is advisable and should not be restricted to Annex I habitats.	Norfolk Vanguard Ltd note that the In Principle Monitoring Plan includes swath-bathymetric surveys and side scan sonar surveys around appropriate samples of adjacent infrastructure to assess changes in seabed topography. The Plan states "The quantity of turbines subject to monitoring will be confirmed following the completion of detailed design studies and in consultation with the MMO and relevant SNCBs."	Noted	Agreed
OS256	DML	2.29	With regard to impacts to fisheries, the MMO will wish to see the appropriate mitigation measures, once these have been agreed and finalised, as conditions on the marine licences.	The Fisheries Liaison and Coexistence Plan will be agreed with the MMO prior to construction in accordance with DCO Schedules 9 and 10 Part 4 condition 14(d)(v) and Schedules 11 and 12 Part 4 condition 9(d)(v). Details of certain mitigation measures e.g. compensation will be confidential.	The MMO have reviewed the Outline Fisheries Liaison and Coexistence Plan and are satisfied with all that is included. Please note a further comment brought up on the meeting 1st March 2019. The MMO will not act as arbitrator 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.	Agreed
OS257	DML	2.30	The MMO is developing a standard O&M plan which can inform this submission to ensure all relevant information is included. The MMO request further engagement with the applicant regarding the content and format of the plan.	The Applicant welcomes further engagement with the MMO	N/A	Agreed
OS258	8. Marine Physical Processes	3.1.1	The project description (Chapter 5) includes a tabulated listing of the scoping consultation responses and reviewer comments on the PEIR, giving the Vanguard responses, while Chapter 8 (Marine Geology Oceanography and Physical Processes) includes those specifically for coastal processes (Table 8.2).	Each chapter includes consultation that is of relevance to the chapter topic	It is agreed the information provided is sufficient	Agreed
OS259	8. Marine Physical Processes	3.1.2	A few issues of major concern (with respect to development impacts) were raised by the MMO in previous reviews of the PEIR. It was noted that the impacts on coastal processes are, largely, unavoidable and cannot be mitigated – being suspended sediments, areas of levelled beds (sandwave clearance) and disposal mounds. The application notes that these impacts are disturbances to the normal marine processes and will lead to a temporary redistribution of sediment, but that it is expected that the processes themselves will not be altered and the redistribution can be expected to restore a recognisable seabed configuration, albeit one altered from the previous undisturbed state. The principal concerns raised are detailed in sections 4.2.1 – 4.2.8 of this document as they relate to monitoring.	Addressed by detailed comments 4.2.1 – 4.2.8 and the associated responses	N/A	Agreed
OS260	8. Marine Physical Processes	3.1.3	Vanguard points out in response to previous advice that bathymetry, geology and metocean data have been surveyed (Table 8.1, p16, Marine Geology Oceanography and Physical Processes) and combined with previous surveys for past planned developments. All data have been previously presented and the environmental descriptions derived are satisfactory.	Agreement from MMO	Agreed	Agreed
OS261	8. Marine Physical Processes	3.1.4	It should be noted that mitigation of the engineering risks is not the same as mitigation for coastal process impacts (which are an unavoidable consequence of construction, of a scale ultimately fixed by the final design). Vanguard has acknowledged this distinction and highlighted the coastal process mitigation by design that is possible (e.g., the retention of removed sediment within the sediment system; though the details of how this is to be achieved are not presented). Following the agreed EIA process, no significant impacts on coastal processes are assessed.	Agreement from MMO	Agreed	Agreed
OS262	8. Marine Physical Processes	3.1.5	East Anglia One OWF modelling has been used as the primary evidence base. Some of the impact assessments are strongly supported by modelling for the East Anglia One OWF (e.g., Suspended Sediment Concentrations (SSC) from installation and disposal) while others are more conjectural (e.g. removal of seabed mounds from dredge spoil). In all cases, Vanguard expresses the opinion that normal processes acting at this largely dynamic site will be unaffected and will prevent any significant long-term effects. This is a reasonable expectation but since the applicant has carried out no new modelling for any aspect of this specific new development there is room for doubt or error and, importantly, no strong evidence to counter any opposing expert opinion.	Agreement from MMO, stating that "This is a reasonable expectation"	Agreed	Agreed

The Applicant's Reference	Subtopic	MMO relevant rep comment no.	MMO Relevant Rep Comment	Applicant position at Deadline 7	MMO Position at Deadline 7	Status Summary
OS263	8. Marine Physical Processes	3.1.6	Expert opinion will tend to translate directly between the analogy and the study case, with largely 'linear' modifications based on other evidence i.e., it is not suitable for examining the complexities of a specific situation. This will tend to simplify problem descriptions. Thus, for example: paragraph 284 (page 89, Marine Geology Oceanography and Physical Processes) states that 0.04% of sandbank area (0.02% of SAC) will be affected by sandwave levelling. This does not take into account the knock-on dynamic impact of the disruption i.e. the possible outward expansion of the 'disturbed' area while it recovers toward a new, continuous 'natural' form. Sandwave field responses to disturbance may vary considerably. Paragraph 287 notes that the proposed volumetric changes are smaller than 'natural' volumetric changes, but does not expand on the comparison (e.g., timescales, spatial scales, etc.). In this case, generally, the cable path is cleared through the crests of the waves, rather than along the crests, but where clearance is parallel to crests the area of disturbance has greater potential to expand over time beyond the area of immediate disturbance. The MMO is not, therefore, fully in agreement with the statement that the HH&W SAC will 'remain undisturbed' (paragraph 286).	Chapter 8 refers to the "system" remaining undisturbed despite the disturbance to sand waves because new sand waves will continue to be formed	Ongoing Discussion, awaiting comments from Cefas to advise if further information is needed.	Ongoing discussion
OS264	8. Marine Physical Processes	3.1.7	Reference to SSC are repeated in multiple documents. SSC is initially quoted as 1-35mg/l, but this statement is unsupported; on each occasion, this statement is immediately followed by quoted measurements up to 108mg/l. Paragraph 134 (Marine Geology Oceanography and Physical Processes) describes baseline SSC as 0-40mg/l. These statements are repeated in the Water Quality chapter, where SSC is the principal impact. The values and ranges presented could be better explained and made consistent, possibly with reference to distribution through the water column (as absolute values may disguise a change in the distribution, with potential consequences for light transmission over wide areas).	It is acknowledged that the statement in para 103 "Suspended sediment concentrations across Norfolk Vanguard could range from 1 to 35mg/l" is incorrect. A variety of data sources have been considered in the ES to characterise the SSC which provide the following: NERC (2016) - maximum concentration of 83mg/l - a mean value of only 15mg/l these lie within the range of measurements taken at NV East (see below) Eisma and Kalf (1987) - 5 to 10mg/l these lie within the range of measurements taken at NV East (see below) AWAC measurements in NV East - 0.3 to 108mg/l - less than 30mg/l for 95% of the time - less than 10mg/l for 70% of the time	Noted	Agreed
OS265	8. Marine Physical Processes	3.1.8	The cumulative impact assessments (pages 112-115) state that additive impacts from multiple OWFs on waves and tidal currents are expected, but then that sediment transport, which they drive, will not be affected - the logic of this difference is not made clear.	Waves and tides could be affected to a very small extent within Vanguard itself (by overlapping effects from individual turbines). This could translate into a potential effect outside the wind farm which could overlap with wave and tide effects from Norfolk Boreas and East Anglia THREE. Hence, there is the potential for a cumulative effect on the physical processes. However, the sediment transport effects would not extend far beyond each individual turbine and so would not interact with sediment transport effects for adjacent turbines within Norfolk Vanguard or outside the bounds of Vanguard. Hence, even though there would be cumulative effects on physical processes between Norfolk Vanguard, Norfolk Boreas and East Anglia THREE, there would be no interaction of sedimentary processes.	Noted	Agreed
OS266	8. Marine Physical Processes	3.1.9	The cumulative assessment also notes that the East Anglia One OWF is not considered on the basis of the assessment for East Anglia Three OWF. However, the cumulative assessment carried out by Scottish Power Renewables for East Anglia One North and East Anglia Two, which have included all OWFs in the East Anglia region, including Vanguard, and demonstrated that, when considered truly cumulatively, hydrodynamic impact shadows of the various OWFs do interact over large areas, albeit at a low level (unmeasurable in any practical sense). It is not practical or necessary for all OWF developers to carry out equivalent assessments independently but, if possible, Vanguard should acknowledge this modelling in assessments in this region.	Norfolk Vanguard Ltd acknowledge the modelling work that has been undertaken by SPR but given the conclusions that the MMO outline (i.e. "unmeasurable in any practical sense"), it is suggested that no further work is required for Norfolk Vanguard	Noted	Agreed
OS267	10. Benthic and Intertidal Ecology	3.2.1	Other OWF DCO conditions and ES have considered operation and maintenance activities such as bird waste removal, paint and repair, J-tube and ladder cleaning. If these activities are likely to be undertaken for Vanguard (Section 10.7.3.7.1 states that regular maintenance of the wind turbines would be undertaken during operation), then the likely effects to the benthos need to be assessed within the relevant chapter.	As comment 1.4	It is agreed the information provided is sufficient	Agreed

The Applicant's Reference	Subtopic	MMO relevant rep comment no.	MMO Relevant Rep Comment	Applicant position at Deadline 7	MMO Position at Deadline 7	Status Summary
OS268	10. Benthic and Intertidal Ecology	3.2.2	The application specifically states that some enabling works for the Norfolk Boreas project will be included within the DCO application, however this project (with respect to the shared export cable corridor) has only been considered within the in-combination effects chapters. It is not clear what 'enabling works' will be included in the DCO and whether they should be assessed within the main impact assessment sections i.e. if both projects (cable works) are being considered within this DCO then the installation of both need to be considered within the EIA.	Enabling works are only onshore, therefore all offshore impacts have been considered in CIA	Noted	Agreed
OS269	10. Benthic and Intertidal Ecology	3.2.3	Paragraph 429 of Document 5.03 (Information to support HRA) above, states that 'Regardless of the phasing scenario selected, the two trenches (associated with Vanguard) would be installed sequentially and on new ground (with 120m between each trench); therefore, no direct recurring disturbance impact to Sabellaria is anticipated.' However, it is likely that there will be further disturbance with the Norfolk Boreas trenches. Please revise sentence accordingly.	Paragraph 429 refers to the impacts of Norfolk Vanguard alone. Installation works associated with Norfolk Boreas was also be on new ground (with approximately 120m between each trench) and the associated in-combination effects are discussed in section 7.4.2.2.1 of the Information to Support HRA report.	This comment can be closed	Agreed
OS270	10. Benthic and Intertidal Ecology	3.2.4	Table 10.12 in Chapter 10 – Benthic and Intertidal Ecology, should consider colonisation of turbines with respect to decommissioning. It would be helpful to know whether a survey be undertaken pre-decommissioning to determine the extent of colonisation.	In accordance with DCO Schedule 1 Part 3 Requirement 14 "No offshore works may commence until a written decommissioning programme in compliance with any notice served upon the undertaker by the Secretary of State pursuant to section 105(2) of the 2004 Act has been submitted to the Secretary of State for approval." It is standard practice for the decommissioning programme and associated impact assessments to be reviewed (and updated if necessary) prior to decommissioning occurring. This review process would identify if pre-decommissioning surveys were required	The MMO is satisfied this can be covered in an additional licence for decommissioning as decommission is not covered as part of the DCO. The MMO clarify that the initial comment was that a survey of the turbines may be necessary pre-decommissioning to determine whether the structures to be removed have been extensively colonised (e.g. what is the impact of removal if the presence of the structures have been assessed as having a beneficial effect?) This will need to be taken into account within the decommissioning licence.	Agreed
OS271	10. Benthic and Intertidal Ecology	3.2.5	Paragraph 297 of Chapter 10 – Benthic and Intertidal Ecology, does not appear to specifically relate to colonisation of turbines/cable protection/scour protection. Please can the applicant provide further information on whether these references actually relate to introduced substrate or whether they relate to the areas in general i.e. are not necessarily related to the presence of introduced substrate. The same sentence is presented in Document 10 above, under paragraph 449.	It is acknowledged that the references included in para 297 of Chapter 10 are more relevant to recovery than colonisation. The following references provide information on colonisation and the findings align with the conclusions in the NV ES Chapter 10: - CMACS (2013). Greater Gabbard Offshore Wind Farm Year 1 post-construction turbine colonisation report (2013 survey). Report prepared by Centre for Marine and Coastal Studies Ltd for Greater Gabbard Offshore Wind Farm Ltd. - CMACS (2014) Walney I&II Offshore Wind Farms post-construction turbine foundation colonisation report (2014 survey). Report to Walney (UK) Offshore Wind Farms Ltd. - Emu Limited (2008) Barrow Offshore Wind Farm Monopile Ecological Survey	The MMO are awaiting technical advice	Ongoing discussion
OS272	10. Benthic and Intertidal Ecology	3.2.6	Paragraph 324 of Document 5.03 (Information to support HRA) states that 'Sediment would not be disposed of within 100m of Sabellaria reef in accordance with advice from Natural England (Expert Topic Group meeting 31st January 2018).' However Table 7.4 states that sediment disposal would be at least 50m from Sabellaria reef identified during pre-construction surveys. This is also stated in paragraphs 432, 435 and 470. The MMO recommend that this is amended accordingly.	50m is correct - advise from NE changed from 100m to 50m	MMO have reviewed the Errata and can agree that this has been amended.	Agreed
OS273	10. Benthic and Intertidal Ecology	3.2.7	Paragraph 329 of Document 5.03 (Information to support HRA) states that it will be likely that micrositing around boulders will be possible although an allowance for clearing 22 boulders (up to 5m in diameter) within the HH&W SAC has been included within the assessment. However, within Table 7.4 (worst case scenario) it states that boulder clearance would consist of up to 100 boulders of 5m diameter within the SAC. This should be revised accordingly.	The Applications Document Errata (document reference Pre-ExA; Errata; 9.4) has now been submitted to the Planning Inspectorate which clarifies there would be up to 22 boulders within the HHW SAC	MMO have reviewed the Errata and can agree that this has been amended.	Agreed
OS274	10. Benthic and Intertidal Ecology	3.2.8	Paragraph 289 of Chapter 10 – Benthic and Intertidal Ecology. The evidence that Sabellaria colonises artificial hard substrates associated with OWF's is found in paragraphs 295 and 296. These paragraphs should be moved up to follow on from paragraph 289.	The ES is now final and it is not proposed that the text will be re-ordered.	Noted- observational point	It is agreed the information provided is sufficient
OS275	10. Benthic and Intertidal Ecology	3.2.9	Paragraph 296 of Chapter 10 – Benthic and Intertidal Ecology. The MMO request clarification of what type of artificial substrate was used at Hornsea ONE OWF and if it is directly comparable with what is proposed for Vanguard.	The type of cable protection to be used for Norfolk Vanguard has not yet been defined and therefore any examples remain relevant	The MMO can clarify the point made should read: *'S. spinulosa was recorded on the newly introduced artificial hard substrate at Horns Rev wind farm (not Hornsea One), suggesting that artificial hard bottoms created by the construction of offshore wind farms offer suitable substrates for S. spinulosa colonisation.'* The MMO would highlight that once the cable protection is decided the applicant will need to take into account if the artificial substrate to be used at Norfolk Vanguard would be equally as suitable for	Agreed

The Applicant's Reference	Subtopic	MMO relevant rep comment no.	MMO Relevant Rep Comment	Applicant position at Deadline 7	MMO Position at Deadline 7	Status Summary
					colonisation by *S. spinulosa.* The MMO would expect the worst case scenario not to be greater than what has been established within the ES. The MMO would expect this to be highlighted to the MMO at the earliest possible stage.	
OS276	10. Benthic and Intertidal Ecology	3.2.10	With regard to the use of polypropylene fronds as scour protection, the MMO recognises there is some uncertainty as to whether the use is appropriate in the marine environment or if the use of these fronds is preferable to rock. The MMO is engaging in further strategic investigations regarding this topic and invites Vanguard to participate with a view to reaching a more robust and confident conclusion.	The Applicant has considered its position regarding polypropylene fronds but has nothing to add to the MMO's investigation at this time.	N/A	N/A
OS277	11. Fish and Shellfish	3.3.1	The ES is generally provides a comprehensive consideration of the fish resources, feeding, spawning and nursery grounds with regard to the development of the Project. A detailed discussion of fish receptors (by receptor categories) present in the vicinity of Vanguard is presented in the fish and shellfish technical report (Appendix 11.1) which is includes commercial demersal finfish and pelagic fish (such as Dover sole, plaice, herring and sprat), sandeels, elasmobranchs (sharks, skates and rays including thornback ray and starry smoothhound), diadromous fish (including European eel and salmon) and non-commercial species. Species of concern have been correctly identified along with potential impacts. The key species which Cefas identified for inclusion in the assessment (seabass, cod, spurdog and sandeels) have all been discussed within the ES.	Agreement from MMO	N/A	Agreed
OS278	11. Fish and Shellfish	3.3.2	A wide variety of information sources have been used to inform the ES and the MMO appreciate the inclusion of International Bottom Trawl Surveys data, which gives a regional perspective of fish ecology. The MMO welcome the inclusion and collation by species of DATRAS data, icthyoplankton, state of the stock, conservation and site-specific survey information. Further the limitations and assumptions made in regard to most of the data used have been outlined and discussed within chapter 11 (refer to paragraph 19 below).	Agreement from MMO	N/A	Agreed
OS279	11. Fish and Shellfish	3.3.3	Section 11.7.4.3 of Chapter 11 identifies underwater noise and vibration as a potential construction impact on fish receptors. The MMO appreciate that the applicant has now included considerations other potential sources of underwater noise during construction within the assessment.	Agreement from MMO	N/A	Agreed
OS280	11. Fish and Shellfish	3.3.4	The MMO notes that an updated assessment of underwater noise is presented in Appendix 5.1. Outputs of the worst-case underwater noise modelling have been applied to key fish receptors selected on the basis of the presence of known spawning grounds in the area of the Project, conservation status, commercial value and specific concerns raised during consultation. Potential Temporary Threshold Shift (TTS) and behavioural impacts to sole, plaice, lemon sole, mackerel, sandeels, seabass, cod, whiting, sprat, herring, elasmobranchs and diadromous species are discussed. TTS noise impact contours are overlain on spawning and nursery ground Figures (Figures 11.23 to 11.33).	Noted, statement does not seem to require a response. The Applicant is not proposing fish monitoring and this would be agreed through IPMP	The MMO confirm that no changes are necessary as for Norfolk Vanguard as the distance from herring spawning areas is sufficient that the impacts do not need to be reassessed using a stationary receptor. There is unlikely to be significant difference in the impacts to justify use of a stationary model.	Agreed
OS281	11. Fish and Shellfish	3.3.5	The MMO have highlighted inconsistences in the stated levels of SSC. The values and ranges presented could be better explained and made consistent, possibly with reference to distribution through the water column (as absolute values may disguise a change in the distribution, with potential consequences for light transmission over wide areas).	See comment 3.1.7. The assessment of changes in suspended sediment concentrations in Chapter 8 Marine Geology, Oceanography and Physical Processes are based on the measurements taken at Norfolk Vanguard (0.3 and 108mg/l). Therefore the conclusions of this assessment which are considered in Chapter 11 Fish and Shellfish Ecology are appropriate.	As per comment 3.1.7 - Noted	Agreed

The Applicant's Reference	Subtopic	MMO relevant rep comment no.	MMO Relevant Rep Comment	Applicant position at Deadline 7	MMO Position at Deadline 7	Status Summary
OS282	11. Fish and Shellfish	3.3.6	The MMO notes that the updated assessment of underwater noise (Appendix 5.1) states that piles more than 7.0 m in diameter, the largest where measured data is available, have been used for the monopile modelling and piles of approximately 4.0 m in diameter (mid-way between the 3 m and 5 m pin pile options currently under consideration) have been used for pin pile modelling. A maximum 5,000 kJ hammer energy for monopiles has been modelled and used as the worst-case scenario for assessment. The applicant has indicated any sized monopiles between 9 and 20 MW could be installed at Vanguard and therefore potentially the worst-case for the larger monopiles ≥9 and ≤ 20 MW has not been fully considered in the assessment, though we acknowledge the modelling has been based on available data for 7 MW turbines and has and assumed that the trends would continue to the larger piles of up to 15 m diameter under consideration for the monopiles. We have potential concern that the modelled/assumed TTS impact ranges for the larger proposed turbines may under estimate/represent potential overlap with known spawning grounds/or areas of high herring larval density. The MMO are aware that the IPMP proposes to compare the measured data, from the first four piles of each type (e.g. monopile or pin-pile), with predictions for received levels and source levels that were made in the ES. In the event that any monitored noise levels exceed the predicted levels or impact ranges assessed in the ES, the impact ranges would need to reconsidered and assessed for fish receptors, especially those that are more acoustically or ecologically sensitive such as herring and cod. Potentially noise reduction and/or species protective mitigation would also need to be considered as well.	The Applicant will submit an updated IPMP (document 8.12) at Deadline 7.	To be confirmed following review of the IPMP (document 8.12)	To be confirmed following review of the IPMP (document 8.12) to be submitted at Deadline 7
OS283	11. Fish and Shellfish	3.3.7	The limitations of the International Bottom Trawl Survey (IBTS) data have not been fully considered within the ES. The IBTS sampling gear has a high headline and while it will capture semi-pelagic species such as sandeels it is not designed to specifically target them. The ES does not recognise the catchability and selectivity of the gear for different species, for example a sandeel dredge is specifically designed to target sandeels and would be a more effective method of establishing abundance and distribution of sandeels within with the site and zone of impact, than the IBTS fishing gear. However, the IBTS data provides indicative information for captured species and the omission of the limitations of the IBTS sampling does not affect my overall confidence in the conclusions and information presented in relation to this data.	Noted, statement does not seem to require a response	N/A	Agreed
OS284	11. Fish and Shellfish	3.3.8	The ES states that piles are generally expected to be driven but drilling may be required at some locations. In addition, other techniques, such as pile vibration, are also being considered (Chapter 5 Project Description). The MMO recognises that this will be confirmed post-consent on receipt of more detailed geotechnical information.	Noted, statement does not seem to require a response	N/A	Agreed
OS285	11. Fish and Shellfish	3.3.9	A number of mitigation measures have been incorporated as part of the project design process in order to minimise the potential impacts of Vanguard on various receptors. Those that are relevant to fish and shellfish ecology are outlined below:	Noted, statement does not seem to require a response	N/A	Agreed
OS286	11. Fish and Shellfish	3.3.10	The MMO notes that a detailed export cable installation study (CWind 2017, unpublished) was commissioned by the applicant but that this has not been presented for review. It would be beneficial for fisheries advisors to review this document to determine whether sufficient mitigation is proposed to reduce the effects of electromagnetic fields (EMF) and potential impacts of this upon elamsobranchs. It is acknowledged that the applicant states that this document confirmed that cable burial is expected to be possible throughout the offshore cable corridor, with the exception of cable and pipeline crossing locations. In order to provide a conservative and future-proof impact assessment, a contingency estimate has however been included in the assessment, should cable burial not be possible due to hard substrate.	CWind 2017 is provided in ES Appendix 5.1 (original reference should have been updated from PEIR)	Noted	Agreed
OS287	11. Fish and Shellfish	3.3.11	The ES does not propose any fish species-specific mitigation. As highlighted above (paragraph 19) the underwater noise assessment for the proposed 9 to 20 MW has been assumed based on data modelled for 7 MW turbines. The MMO recommend that species specific mitigation may need to be considered in the future if noise monitoring shows that piling noise levels and impact ranges exceed those predicted in the ES. The MMO notes that the maximum piling duration is estimated to be 1,260 hours (52.5 days, Table 11.11).	The Applicant will submit an updated IPMP (document 8.12) at Deadline 7.	To be confirmed following review of the IPMP (document 8.12)	To be confirmed following review of the IPMP (document 8.12) to be submitted at Deadline 7

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OS288	14. Commercial Fisheries	3.4.1	Brown crab (Cancer pagurus), European lobster (Hommarus gammarus), velvet swimming crab (Necora puber), brown shrimp (Crangon crangon), pink shrimp (Pandalus montagui) and the common whelk (Buccinum undatum) have been identified as commercially important shellfish species in ICES area IVc. The MMO agree that, whilst other shellfish species have been identified (common prawn (Palaemon serratus), shore crab (Carcinus maenas), spider crab (Majidae spp.), cuttlefish (Sepiidae spp.), octopus (Octopoda spp.) and squid (Teuthida spp.)), their commercial importance, in this area, are low. However, refer to further comments at point 4.5.1.	Agreement from MMO	N/A	Agreed
OS289	14. Commercial Fisheries	3.4.2	In the MMO's advice relating to the PEIR review, it was highlighted that most vessels targeting the more important species (C. pagurus, H. gammarus, B. undatum) will likely be small (<10m) beach-launch boats; as such, they are likely to be more vulnerable to displacement resulting from the works than larger vessels. Effort by the under 12m fleet is often underestimated as they aren't required to carry Vessel Monitoring Systems (VMS) and may be missed by overflight surveys. The PEIR identified that the construction phase of the cable corridor is likely to result in a moderate adverse impact upon the <15m fleet through temporary loss of access to fishing grounds during installation of the offshore cable corridor. I acknowledge that consultations to inform the ES have been carried out, but could not find reference to displacement issues (Table 11.2 Consultation responses).	Table 14.2 in ES Chapter 14 Commercial Fisheries includes the consultation on displacement	Noted	Agreed
OS290	14. Commercial Fisheries	3.4.3	With regard to mitigation, It was suggested (advice dated 21 November 2017) that mutually acceptable procedures should be put in place for the relocation of static gear which should be sufficient to reduce the impact to minor adverse significance, not significant in EIA terms. The MMO would expect to see a description of the possible procedures, including those used previously, in the EIA.	The Fisheries Liaison and Coexistence Plan will be agreed with the MMO prior to construction in accordance with DCO Schedules 9 and 10 Part 4 condition 14(d)(v) and Schedules 11 and 12 Part 4 condition 9(d)(v). An Outline Fisheries Liaison and Coexistence Plan will be submitted during the Examination. Where there is likely to be a demonstrable impact on commercial fishing individual agreements will be reached as necessary, with any agreements based on evidence and track record and in accordance with Fishing Liaison with Offshore Wind and Wet Renewables (FLOWW) Best Practice Guidance for Offshore Renewables Developments.	Noted	Agreed
OS291	Underwater noise	3.5.1	The most direct and comprehensive way to mitigate the risk of acoustic impact on marine species is to reduce the amount of noise pollution emitted at source. For pile driving, there are now noise reduction technologies available, such as big bubble curtains and acoustic barriers that are integrated into the piling rig (e.g. IHC Noise Mitigation System), which are being routinely deployed in German waters. The MMO encourages the developer to consider using such source mitigation as the primary means of reducing the potential acoustic impact of pile driving (and UXO) operations	See Comment 1.13	The MMO are satisfied that the MMMP and SIP provide the framework to agree mitigation prior to construction. The MMO would welcome changes to the IPSIP to clarify points.	Agreed.
OS292	12. Marine Mammals	3.5.2	The primary species of concern have been identified; these are the harbour porpoise, grey and harbour (or common) seal. The ES correctly identifies the potential impacts on marine mammals relating to underwater noise during the construction and operational (and decommissioning) phase (see Annex II of this advice minute for a summary of potential impacts).	Agreement from MMO	N/A	Agreed
OS293	Underwater noise	3.5.3	There were several queries raised during the PEIR review in relation to the underwater noise modelling assessment. These queries have been addressed in Table 4 Consultation response of Chapter 12 Marine Mammals. Details of the marine mammal surveys undertaken are detailed in Chapter 12: Marine Mammals. The MMO defers comments to Natural England.	Agreement from MMO	N/A	Agreed
OS294	Underwater noise	3.5.4	The MMO supports that a MMMP for piling will be developed in the pre-construction period and will be based upon best available information and methodologies. The MMMP for piling will include details of the embedded mitigation, for the soft-start and ramp-up, as well as details the mitigation zone and the mitigation measures to reduce the risk of any physical or permanent auditory injury (PTS) to marine mammals during all piling operations. A mitigation zone will be established to ensure marine mammals are outside the range for PTS	Agreement from MMO	N/A	Agreed
OS295	Underwater noise	3.5.5	The mitigation zone will be based on instantaneous PTS and cumulative PTS impact ranges. Mitigation measures would aim to remove marine mammals from the mitigation zone prior to the start of piling to reduce the risk of any physical or auditory injury. The methods for achieving the mitigation zone would be agreed with the MMO and secured as commitments within the MMMP for piling.	Agreement from MMO	N/A	Agreed

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OS296	Underwater noise	3.5.6	A detailed MMMP must also be prepared in the pre-construction phase for UXO clearance to prevent the risk of PTS. Noise reduction measures such as bubble curtains will be given consideration (para 397) (see comment 14 below). An EPS licence application, if required, will be submitted post-consent. At this time, pre-construction UXO surveys will have been conducted, as well as full consideration of the mitigation measures that will be in place following the development of the MMMP for UXO clearance.	Agreed, ES Chapter 12 Marine Mammals states that a UXO MMMP would be produced. This would be undertaken as part of the Marine Licence application for the UXO clearance works	Agreed	Agreed
OS297	Underwater noise	3.5.7	Underwater noise modelling was undertaken to estimate the potential impact ranges for various UXO detonations (see also Appendix 5.4). Source levels were estimated for each charge weight in accordance with the methodology of Soloway & Dahl (2014). The impact criteria use thresholds and weightings based on the NOAA (NMFS, 2016) criteria for the onset of PTS and TTS. Table 12.27 and 12.28 of Chapter 12 show the predicted impact ranges. It is noted that sizeable PTS effect zones are predicted for harbour porpoise and TTS effect zones for harbour porpoise and seals.	Noted, statement does not seem to require a response	N/A	Agreed
OS298	Underwater noise	3.5.8	Comments 3.5.9 – 3.5.12 relate to Appendix 5.3: Underwater Noise Assessment and Appendix A Remodelling using INSPIRE. 20012773	Noted, statement does not seem to require a response	N/A	Agreed
OS299	Underwater noise	3.5.9	The MMO recommends that the underwater noise assessment should also provide a plot showing the predicted received sound levels with range, for the single strike sound exposure level (SEL). This will facilitate and streamline the process of comparing predictions with any future construction noise monitoring data collected for compliance purposes.	The Applicant will submit an updated IPMP (document 8.12) at Deadline 7.	To be confirmed following review of the IPMP (document 8.12)	To be confirmed following review of the IPMP (document 8.12) to be submitted at Deadline 7
OS300	Underwater noise	3.5.10	The assessment refers to and considers the most appropriate and recommended peer-reviewed impact criteria for fish (Popper et al., 2014) and marine mammals (NMFS [NOAA] (2016). Note: modelling has also been undertaken using criteria from Southall et al. (2007) and Lucke et al. (2009) for a complete assessment.	Agreement from MMO	N/A	Agreed
OS301	Underwater noise	3.5.11	Note that a fleeing animal model has also been used for fish receptors, as well as for marine mammals.	Noted, statement does not seem to require a response	The MMO confirm that no changes are necessary as for Norfolk Vanguard as the distance from herring spawning areas is sufficient that the impacts do not need to be reassessed using a stationary receptor. There is unlikely to be significant difference in the impacts to justify use of a stationary model.	Agreed
OS302	Underwater noise	3.5.12	It is appropriate that the ramp up scenarios are provided in A11 and A12 (see also Annex I of this advice minute). It is also appropriate that the modelling includes both the unweighted SPLpeak and SELss source levels in Table A13 – A16 (estimated from a sound level model) for maximum hammer energy and soft start.	Agreement from MMO	N/A	Agreed
OS303	Site Characterisation Report	3.6.1	Section 6 of the Site Characterisation Report thoroughly identifies potential impacts of disposal within the OWF sites and offshore cable corridor. These impacts are also presented appropriately within chapters 8, 9 and 10 of the ES.	Agreement from MMO	N/A	Agreed
OS304	Site Characterisation Report	3.6.2	Thirteen sediment samples were taken from within the OWF sites and offshore cable corridor (3 samples from Vanguard West, 3 samples from Vanguard East and 7 samples from within the offshore cable corridor) as part of surveys undertaken by Fugro in October/November 2016. The samples were analysed for levels of trace metals, organotins, polycyclic aromatic hydrocarbons (PAHs), total hydrocarbons (THCs) and polycyclic biphenyls (PCBs).	Noted, statement does not seem to require a response	N/A	Agreed
OS305	Site Characterisation Report	3.6.3	This analysis method meets the MMO criteria and is suitable to inform the ES.	Agreement from MMO	N/A	Agreed
OS306	Site Characterisation Report	3.6.4	The mitigation measures are suitable to minimise the impacts associated with dredge and disposal activities at the site.	Agreement from MMO	N/A	Agreed
OS307	In Principle Monitoring Plan	4.1	Vanguard commit to strategic monitoring of marine mammals through the DEPONS project and of ornithological impacts via the European Offshore Wind Deployment Centre Research. While the MMO welcomes the valuable wider information, it is important to meet the monitoring requirements for Vanguard by applying the results specifically to the individual project and analysed against assumptions made in the environmental statement.	The Applicant will submit an updated IPMP (document 8.12) at Deadline 7.	To be confirmed following review of the IPMP (document 8.12)	To be confirmed following review of the IPMP (document 8.12) to be submitted at Deadline 7
OS308	In Principle Monitoring Plan	4.2.1	In view of the limited specific modelling and the reliance instead on expert interpretation for impact assessment, and the likely future pressure this will generate to rely on such methods in future development cases, monitoring should be specified to validate the spatial and temporal scale of impacts and to verify the anticipated recovery of (particularly) the designated features of the HH&W) SAC (particularly as the plan is presently for no benthic monitoring).	The In Principle Monitoring Plan includes a section on the proposed benthic monitoring (section 4.3).	Noted	Agreed

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OS309	In Principle Monitoring Plan	4.2.2	Within the IPMP, the applicant writes that monitoring should have a clear purpose and answer specific questions where significant impacts have been identified. Since the ES derived no significant Coastal Processes impacts, this could be used to argue for limited monitoring. However, the IPMP adds that "Monitoring should be targeted to address significant evidence gaps or uncertainty, which are relevant to the project and can be realistically filled, as well as to those species or features considered to be the most sensitive to the project impacts including those of conservation, ecological and/or economic importance…"	Noted, statement does not seem to require a response	N/A	Agreed
OS310	In Principle Monitoring Plan	4.2.3	This latter paragraph supports advice provided in reviewing the PEIR that monitoring should, as a minimum, verify the expert assessments (that impacts will be locally confined and that the bathymetric changes associated with sandwave clearance and the trenches, mounds and depressions formed during construction are gradually erased). This is necessary, as the ES assessments are based on expert assessment only and when designing possible future interventions (e.g. responses to cable exposures or repairs), particularly within the SAC, it would be valuable to understand more accurately how the seabed actually responds.	Noted, statement does not seem to require a response	N/A	Agreed
OS311	In Principle Monitoring Plan	4.2.4	The application refers to the models being calibrated (e.g. page 342) but this phrasing obscures the more important point that the 'post-construction' impacts predicted by the models have not been validated by observations.	Noted, this statement has been responded to representation 4.2.5 below.	N/A	Agreed
OS312	In Principle Monitoring Plan	4.2.5	Therefore, given that the development passes through a nominally protected area, directly affects the designated sedimentary system and has assessed the impact of doing so as (effectively) unimportant on the basis of no case-specific evidence, there is a need to verify that this assessment is true (e.g. through effective monitoring).	The Applicant will submit an updated IPMP (document 8.12) at Deadline 7.	To be confirmed following review of the IPMP (document 8.12)	To be confirmed following review of the IPMP (document 8.12) to be submitted at Deadline 7
OS313	In Principle Monitoring Plan	4.2.6	The applicant justifies their proposed offshore monitoring (one post-construction bathymetric and side scan sonar survey within a 500m buffer around the developed area) largely by engineering concerns (Table 4.1, IPMP document, p9); however, the driver quoted above implies that the sandwaves in the HH&W SAC are a valid target for monitoring; specifically, whether the expected recovery is being observed following levelling. It is possible that the proposed 500m buffer area will be sufficient to capture this, depending on the local wavelength of the bedforms, but it may be that a wider area of disturbance is identified and that a programme of repeated monitoring is required.	The Applicant will submit an updated IPMP (document 8.12) at Deadline 7.	To be confirmed following review of the IPMP (document 8.12)	To be confirmed following review of the IPMP (document 8.12) to be submitted at Deadline 7
OS314	In Principle Monitoring Plan	4.2.7	It is therefore important that the applicant has allowed (in the IPMP) that the final monitoring schedule remains to be agreed with the MMO.	The In Principle Monitoring Plan states "*The IPMP provides a framework for further discussions post consent with the MMO and the relevant authorities to agree the exact detail (timings, methodologies etc.) of the monitoring that is required*."	N/A	Agreed
OS315	In Principle Monitoring Plan	4.2.8	The IPMP proposes nearshore monitoring (again a single survey), as noted in previous advice, to ensure that the impact on nearshore processes is, as expected, negligible.	Noted, statement does not seem to require a response	N/A	Agreed
OS316	In Principle Monitoring Plan	4.3.1	Points relating to monitoring of Benthic Ecology can be found in sections 2.20, 2.21, 2.27, 2.28, 3.2.5 and 3.2.6 of this document.	Noted	N/A	Agreed
OS317	In Principle Monitoring Plan	4.4.1	No fish ecology or fisheries specific monitoring has been proposed. The IPMP states that alone and cumulatively, no moderate or major residual impacts are predicted for Vanguard. The applicant has considered the Guiding Principles set out in section 2 (specifically 27(b) and (c) and in the case of fish and shellfish ecology it is proposed that no further monitoring or independent surveys are required.	Noted, statement does not seem to require a response	N/A	Agreed
OS318	In Principle Monitoring Plan	4.4.2	Cefas fisheries advisors agreed as part of the Evidence Plan Process that the data from surveys in areas which are relevant to the offshore project area (EA3 and EA4) could be used to characterise the NV site. As outlined in XX above we have potential concerns that the underwater noise impact assessment could underrepresent potential noise impact ranges generated from larger turbines for fish receptors. We recognise that noise monitoring is proposed (paragraph 19), if the noise impact ranges are not representative, further assessment should be undertaken and if significant impacts are predicted then fish monitoring requirements may need to be reconsidered.	The Applicant will submit an updated IPMP (document 8.12) at Deadline 7.	To be confirmed following review of the IPMP (document 8.12)	To be confirmed following review of the IPMP (document 8.12) to be submitted at Deadline 7

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OS319	In Principle Monitoring Plan	4.5.1	Table 11.2 of the Fish and Shellfish Ecology Technical report displays the monitoring surveys carried out to identify shellfish. These surveys used either beam or otter trawls which are not the most efficient gears to capture the shellfish more common to the area, such as brown crab (Cancer pagurus) and European lobster (Homarus gammarus). MMO landings data have been analysed, which will provide insight into spatiotemporal volumetric data on shellfish, albeit only to ICES rectangle resolution. It is therefore not possible to accurately quantify shellfish abundances based on the results. If monitoring surveys are to be used for pre-construction and post-construction surveys to validate predictions of negligible/minor impacts on shellfish, gear used in commercial fishing operations for the target species in question should be used.	The Applicant will submit an updated IPMP (document 8.12) at Deadline 7.	To be confirmed following review of the IPMP (document 8.12)	To be confirmed following review of the IPMP (document 8.12) to be submitted at Deadline 7
OS320	In Principle Monitoring Plan	4.6.1	The MMO notes that the MMMP will include monitoring where appropriate, and we expect that further details will be provided in due course.	Agreed	N/A	Agreed
OS321	In Principle Monitoring Plan	4.6.2	Section 4.6 Underwater Noise of the IPMP details the proposals for construction noise monitoring (if pile driving is required) of the first four piled foundations of each foundation type to be installed. It is appropriate that underwater data will be recorded that allows a comparison with the EIA underwater noise modelling with analysis using un-weighted metrics, such as peak sound pressure level, sound exposure level and peak to peak pressure level. Please see comment 3.5.9.	Agreed	N/A	Agreed, subject to close out of comment 3.5.9.
OS322	In Principle Monitoring Plan	4.7.1	No monitoring has been suggested in relation to dredge and disposal activities. Given the low contamination levels of sediment (as shown in table 3.3 of the Site Characterisation Report), this is acceptable.	Agreement from MMO	N/A	Agreed
OS323	Site Integrity Plan	4.8.1	The lack of consideration of potential in-combination effects with other projects undertaking noise generating activities in the same temporal and spacial area is a major weakness in this document in moving towards a more confident position.	The SIP format follows that agreed for EA3 providing the framework for mitigation. The potential in-combination effects are assessed in full in the Information to Support HRA report.	Defer to SNCB for HRA, although noting that the MMO have role in how mitigation is implemented	N/A
OS324	Site Integrity Plan	4.8.2	The MMO continue to have concerns regarding this uncertainty. Especially since current projects have extended their piling and UXO schedules by consideration amounts and one recent assessment brought the daily noise thresholds in the Sothern North Seas (SNS) pSAC at 16% which is perilously close to the limit of 20%.	Noted	N/A	Agreed
OS325	Site Integrity Plan	4.8.3	Point 22 – page 7 states that the final Site integrity Plan will be produced not less than 4 months prior to construction. Considering the difficulties current project have with dealing with underwater noise in the SNS pSAC and that Vanguard is proposing larger piles and increased hammer energy, the MMO consider underwater noise a challenging aspect of this project and a major hurdle to overcome. Another complication is that seasonal restrictions are not going to be appropriate as mitigation in this instance as both areas of the windfarm are within 26km of both summer and winter areas of the pSAC. Therefore, the MMO would expect to see the final Site Integrity Plan six months before commencement and urge early engagement with ourselves and our statutory advisors on this matter.	See 2.10 above	See 2.10 above	Ongoing discussion
OS326	Site Integrity Plan	4.8.4	Point 63 – page 21 states that the point of the site integrity plan is to deal with the fact that without a comprehensive plan, there is a risk to the conservation objectives for harbour porpoise from the potential in-combination effects during the construction period at Vanguard. However point 66 page 22 concludes that not enough information is available at this present time to assess effects and plan mitigation.	Please see comments in 1.13	The MMO is satisfied that the In Principle SIP allows for future mitigation in the final SIP. Please see comments in 1.13	Agreed
OS327	Site Integrity Plan	4.8.5	Point 68 – page 21 states "Potential strategic management measures such as scheduling of pile driving (section 6.1.3) would need to be carefully managed by the Regulators to achieve a coordinated approach with other developers." The MMO has informed Vanguard when an early draft of the Site Integrity Plan was shared (date) that no processes nor agreements are in place for the MMO to manage concurrent piling. No further engagement has been undertaken on this topic since then.	The MMO are named in the SIP for the consented East Anglia THREE OWF and so Norfolk Vanguard Ltd is proposing to take the same agreed approach. It is also noted that the Review of Consents proposes a SIP condition to manage potential cumulative impacts	In accordance with Section 1.1.1 of the MMO Deadline 6, the current requirement for SIP is likely to be sufficient to allow any mechanism to be fully incorporated without need for	Agreed
OS328	Site Integrity Plan	4.8.6	The MMO acknowledges that Vanguard is waiting for new conservation objectives and guidelines to be circulated as detailed in the report however the MMO feels strongly that this issue cannot be relegated to post-consent plans but that a strategic approach to look forward to anticipate considerable problems is undertaken and resolved.	The strategic approach will need to take account of actual build scenarios/programmes and so cannot be defined at this stage. This information, provided in the final SIP, will be based on the final design of the project and latest guidance prior to construction.	This will be considered in the SoS's AA	N/A
OS329	Site Integrity Plan	4.8.7	The ongoing uncertainties regarding the points raised above and the difficulties experienced by current wind farms means that this issue needs to be considered at both a strategic and project level and more certainty and confidence in solutions developed at this stage in the process. If progress is not made at submission stage, then the applicant and the MMO will have difficulties meeting the requirements to allow construction to be undertaken without unacceptable risk to protected marine mammals.	The strategic approach will need to take account of actual build scenarios/programmes and so cannot be defined at this stage. This information, provided in the final SIP, will be based on the final design of the project and latest guidance prior to construction.	This will be considered in the SoS's AA	N/A