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Hornsea Project Three Case Team
Planning Inspectorate
(Email only)

MMO Reference: DCO/2016/00001
Planning Inspectorate Reference: EN010080
Identification Number: 20010662

07 November 2018

Dear Sir or Madam,

Planning Act 2008, Orsted Hornsea Project Three Limited, Proposed Hornsea Project Three Offshore Windfarm Order

On 14th June 2018, the Marine Management Organisation (the “MMO”) received notice under section 56 of the Planning Act 2008 (the “PA 2008”) that the Planning Inspectorate (“PINS”) had accepted an application made by Orsted Hornsea Project Three Limited (the “Applicant”) for determination of a development consent order (the “DCO Application”) (MMO ref: DCO/2016/00001; PINS ref: EN010080).

The Development Consent Order Application includes a draft development consent order (the “DCO”) and an Environmental Statement (the “ES”). The draft DCO includes, at Schedule 11 and 12 a draft Deemed Consent under Part 4 (Marine Licensing) of the Marine and Coastal Access Act 2009 (the “Deemed Marine Licence” (DML)).

The DCO Application seeks authorisation for the construction, operation and maintenance of Hornsea Project Three (“Hornsea Three”) offshore wind farm, comprising of up to 300 wind turbine generators together with associated onshore and offshore infrastructure and all associated development (“the “Project”).

This document comprises the MMO’s comments in respect of the DCO Application submitted in response to Deadline 1. This written representation is submitted without prejudice to any future representation the MMO may make about the DCO Application throughout the examination process. This representation is also submitted without



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prejudice to any decision the MMO may make on any associated application for consent, permission, approval or any other type of authorisation submitted to the MMO either for the works in the marine area or for any other authorisation relevant to the proposed development..

Yours faithfully

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1. Comments on Relevant Representations (RRs)

Historic England (HE)

- 1.1 The MMO supports Historic England's request that the draft DCO should include provision for delivery of a project-specific Written Scheme of Investigation (WSI), produced and agreed pre-commencement and prior to the start of pre-construction survey work.

Maritime and Coastguard Agency (MCA)

- 1.2 The MMO notes that the MCA remains concerned regarding the indicative layout of the Hornsea Three offshore wind farm turbines and their potential impact on search and rescue (SAR) capabilities. Provision for approval of the final design plan has been reserved in the draft dMLs at Schedules 11 and 12 and the MMO confirms that consultation would take place with the MCA on the proposed final design plan to ensure SAR issues are fully accounted for where possible in the Hornsea Three wind farm design plan.

The MMO supports the request from the MCA for an assessment as to the feasibility of a perpendicular helicopter refuge area within the array area, halfway along the development, to address SAR access issues.

Eastern Inshore Fisheries Conservation Authority (IFCA)

- 1.3 The MMO supports the Eastern IFCA's assertion that recent offshore wind farm operations and maintenance activities have increased the requirement for seabed disturbance and the potential for exclusion of fishing activities within certain areas where cables cannot be buried. It is recommended that potential impacts of operations and maintenance activities are realistically assessed in the ES, based on the frequency of operations and maintenance activities undertaken by recent offshore wind farm projects. The MMO confirms that the local potting industry within the area of the proposed inshore cable corridor represent a substantial contribution to both local and national economies and expects that the Applicant will continue to work with fishing industry representatives to address their concerns.

Natural England (NE)

- 1.4 The MMO is aware that the Applicant and NE have been working together to resolve potential issues raised in their Relevant Representation to produce a Statement of Common Ground for submission at Deadline 1. Based on the experience of managing a number of DCOs for offshore wind farms, the MMO underlines the importance of continuing dialogue between the Applicant and NE to address potential issues relating to the construction of Hornsea Three and impacts of the Project on affected marine



protected areas. A range of common issues have been raised in both NE and the MMO's Relevant Representations and the MMO will continue to work with both the Applicant and NE to address the issues raised where appropriate areas of responsibility occur.

Whale and Dolphin Conservation

- 1.5 The MMO notes the recommendations from Whale and Dolphin Conservation regarding underwater noise issues and agrees that they would be a consultee regarding discussions on the Marine Mammal Monitoring Protocol for Hornsea Three.

The Wildlife Trusts

- 1.6 The MMO supports the request of the Wildlife Trusts to be included as a consultee on discussions relating to the Marine Mammal Monitoring Plan and In Principle Monitoring Plan for Hornsea Three. It is also noted that a number of the recommendations for wider noise monitoring in the Southern North Sea at a strategic level would fall beyond the remit of the proposed DCO for Hornsea Three. The MMO supports the suggestion for funding and establishing a wider industry Southern North Sea underwater noise management steering group, however such a group is recognised to have a wider remit than the proposed Hornsea Three project alone.

Ministry of Defence

- 1.7 The MMO supports the proposal by the Ministry of Defence to amend the draft DCO at Schedule 11, Section 6(1): Aids to Navigation and Section 8(1) Air Navigation, stipulating the requirement for aviation warning lighting to be fitted to relevant offshore structures as identified as necessary for the duration of the construction and operation of the scheme, as proposed by the Defence Infrastructure Organisation.

2. Summary of the MMOs Relevant Representation

Summary of Issues raised in the Development Consent Order and Deemed Marine Licence (DML)

- 2.1 Please note that a number of the issues detailed in the section below have subsequently progressed as a result of discussions between the Applicant and the MMO on their Statement of Common Ground (SoCG). In addition, the Applicant has submitted a Relevant Representation response (published on the PINS website 12/09/18) which directly addresses a number of issues raised in the MMO's Relevant Representation (RR). A number of specific reports have also been provided to the MMO in advance of formal submission by the Applicant at Deadline 1 on 07/11/18 which address specific issues raised by the MMO in their RR. The RR summary below therefore reflects the MMO's position at the point of submission of the Applicant's



proposal to the Planning Inspectorate on the Hornsea Three project on 20 July 2018.

Arbitration

2.2 The DCO for Hornsea Project 3 (Hornsea Three) included a Schedule (Schedule 13) detailing the process for arbitration, which was supported by Article 36 and several conditions throughout the DCO and the DMLs Schedules 11 and 12. The set out process included significantly different conditions and timeframes, which the MMO considered to be inappropriate. It was the MMO's opinion that the described process shifts the responsibility of decision making from the regulator to an independent arbitrator, which would be contrary to the intent of Parliament set out in the Marine and Coastal Access Act 2009 (MCAA) and would usurp the role of the MMO as a regulator.

Interpretation of 'commence'

2.3 The interpretation of 'commence' for both the DCO and DMLs excluded offshore site preparation works. The MMO considered that offshore preparation works should be included in the interpretation of 'commence'. Exclusion of these works from the definition of 'commence' would allow the developer to undertake sandwave levelling, boulder relocation and other activities prior to the agreement of any required mitigation, sufficient consideration and consultation upon construction methods and monitoring plans and prior to the requirement to perform any necessary pre-construction monitoring surveys.

Timescales

2.4 The proposed timescales conditioned in the DMLs required a response period of 8 weeks following receipt of all post-consent documentation. Furthermore, both DMLs set out the requirement for all pre-construction documentation and plans under Condition 11 or 12 to be submitted for approval 4 months prior to the commencement of any licenced activity. Considering the increased size and complexity of the Round 3 offshore wind farm projects and the increasing number of issues encountered on previous offshore wind farm projects during the pre-construction approval process, the MMO considered that a timeframe of 6 months would be more appropriate to address such issues through consultation prior to their approval. The MMO also recommended removal of the requirement that any failure to provide a decision in time may lead for the matter to be referred to arbitration.

Figures

2.5 On numerous occasions, the figures for cable length, cable protection, scour protection and disposal volumes did not match between the DCO, the DMLs and the



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Environmental Statement (ES) project description. The MMO requested that these errors should be addressed to allow for accurate consideration of the potential impacts of these elements of the proposed development. The MMO also recommended that figures for maximum sandwave levelling and boulder clearance should be included in the DCO/DMLs to ensure that the limits defined in the ES are adhered to.

Monitoring

2.6 The MMO recommended that conditions for pre – and/or post construction monitoring for features of ecological importance should be included in the DMLs. Furthermore, only limited information on benthic, ornithological and marine mammal monitoring has been provided in the DMLs. The MMO suggested that conditions for pre- and post-construction monitoring surveys to inform micro-siting around any features of ecological importance should be included. Furthermore, the MMO recommended more detail of the monitoring to be undertaken in the appropriate conditions for benthic, ornithology and marine mammals etc. For benthic in particular, the MMO recommended benthic habitat monitoring to determine impacts due to turbine placement and Suspended Sediment Concentration (SSC) within the SAC. Overall, the MMO noted that general conditions setting out the requirements for monitoring stated that all documentation was required to be submitted no less than 4 months prior to the commencement of the licenced activities. The MMO advised that pre-construction monitoring should have been undertaken well in advance of this date.

Summary of issues raised in the ES

Marine Processes

2.7 The MMO raised concerns in relation to the limited assessment and detail presented on Markham’s Hole and Silver Pit. As part of this, the MMO requested further clarity on the local sediment transport pathways associated with changes in water depth and sediment type and on the presence of any bathymetric currents associated with a change in bathymetry.

Further clarity was also requested in relation to scour and cable protection. The MMO had remaining concerns regarding impacts on sediment transport and coastal processes in relation to the North Norfolk Coast, where the proposed cable route runs parallel to the coast.

Benthic Ecology

2.8 The MMO raised concerns in relation to the limited/unavailable survey data on the revised cable route crossing through the Wash and North Norfolk Coast Special Area



Conservation (SAC). The ES stated that the developer had high confidence that the new route would not differ substantially from the adjacent mapped sections of the corridor. The MMO questioned this confidence, since it remained unclear to the MMO how the confidence could be high when only very limited information was available to support this statement.

The MMO highlighted concerns in the classification of reefiness. ECR04 was classified as 'Low reef', however the MMO considered that this type of reef should be classified as Annex I reef, especially within the SAC. Furthermore, other sites classified as 'not a reef' within the SACs should still be considered as potential Annex I reef habitat within the ES. This had consequences for subsequent assessments undertaken within the ES which were based on the premise that no Annex I habitat was identified and hence no mitigation was required.

The MMO had remaining concerns in relation to the assessment of sensitivity of habitats A-E. The combined significance of the effect was assessed as minor adverse, however the MMO considered that, as habitats respond differently to different impacts, the habitats should be given separate significance ratings. This is important as 30% of the known reef presented within the Hornsea Three Project area may be affected by sandwave clearance. Furthermore, the MMO considered that the temporary habitat loss of habitat E (30%) should be considered as of greater than minor magnitude.

Fish and Shellfish

2.9 The MMO noted that the underwater noise assessment appeared to have taken a conservative approach in assessing the impacts to fish, however it was unclear whether the scenario of concurrent piling had been taken into consideration for the modelling. If concurrent piling were proposed, then the MMO recommended that noise modelling should reflect this scenario and a revision of the mapped noise contours should be presented to identify any potential overlap with herring spawning grounds.

Underwater noise

2.10 UXO Clearance PTS: Permanent Threshold Shift from UXO clearance was assessed as negligible to low magnitude of impact. When considering mitigation and compliance of EPS guidance the overall risk was assessed as negligible magnitude. The MMO considered that this assessment was not appropriate, as commonly used mitigation measures to date have not been sufficient in mitigating the full predicated impact area and injury may occur. The MMO therefore recommended that the magnitude of the impact should be as assessed as medium.

The MMO advised that the most direct and comprehensive way to mitigate the risk of



acoustic impact on marine species would be to reduce the amount of noise pollution emitted at source. Noise reduction technologies are available, such as big bubble curtains and acoustic barriers integrated into the piling rig (e.g. IHC Noise Mitigation System). Such mitigation should be considered as a primary means of reducing the potential acoustic impact of pile driving operations and UXO clearance activities. Here the MMO considered that, based on the conditions outlined in Chapter 1 – Marine Processes, use of bubble curtains would be feasible to mitigate potential underwater noise impacts.

3. Summary of the Written Representation (WR)

The MMO's Written Representation details the issues which remain outstanding following discussions with the Applicant on their Statement of Common Ground between July and October 2018. The main outstanding issues in relation to the draft DCO, DMLs and the ES are in relation to the following topics:

Arbitration

- 3.1 Set out in Article 36 of the DCO and described within condition 12 and 13 of the Array DML and the Transmission DML respectively and Schedule 13. The MMO has currently not reached an agreement with the Applicant on this issue and will update their position as the examination progresses.

Timescales

- 3.2 Given the numerous issues that the MMO encounters throughout this process and the increased size and complexity of Round 3 projects, the MMO consider that a 6 month submission timeframe would be more appropriate.

Monitoring requirements

- 3.3 The MMO has remaining concerns regarding the monitoring requirements as they are currently set out in the DMLs. Here concerns have been raised in relation to the content of the reports, post construction monitoring requirements and timescales to be agreed for the submission of any noise modelling reports.

Environmental Statement (ES)

- 3.4 The MMO has outstanding concerns regarding the only limited commitment for benthic monitoring. The MMO consider that not only monitoring for Annex 1 species but also for general benthic habitats should be undertaken. Furthermore, there is remaining uncertainty regarding the impacts of underwater noise on Flamborough Head Spawning Ground and also fish behaviour. From this, the MMO has recommended that updated modelling should be provided.



4. Written Representation

The MMO's Written Representation details the issues which remain outstanding.

Development Consent Order and Deemed Marine License (DML):

DCO Interpretations and Articles

4.1 Article 36 (page 27) – Arbitration

The MMO notes that the introduction of the arbitration schedule and subsidiary conditions is a change from the established process. The explanatory memorandum highlights the developer's intention to ensure a quick dispute resolution and a timely delivery of the project. It is the MMO's opinion that the proposal goes beyond providing greater certainty.

The MMO strongly disagrees with any attempt by the applicant to have its regulatory decisions or determinations made subject to a form of binding arbitration as set out in Article 36 and Schedule 13. Furthermore, the MMO consider the justification provided in the explanatory memorandum and the subsequent RR response provided by the applicant to be insufficient. The evidence for such a requirement provided is the reference to PINS advice note 15: Drafting Development Consent Orders, which suggests the inclusion of a route for issue resolution. The MMO considers the proposed arbitration process to be in excess of this Planning Policy Guidance Note.

It is the MMO's view that the Planning Act and the PINS guidance is clear that DMLs, which are included within a DCO, are to be treated as self-contained and should be able to stand alone from the rest of the DCO. This is because, once a DCO is granted, the responsibility of the DML passes back to the MMO and falls into the marine licensing regime as set out in Part 4 of the Marine and Coastal Access Act 2009 (MCAA). This mechanism is expressly provided for in the Planning Act, and it means that once the DML is granted, it falls to be treated and regulated as if it were a license that was issued by the MMO under MCAA, i.e. consistently with other licences issued directly by the MMO. Licences issued by the MMO do not contain arbitration provisions.

As necessary, any disagreement is dealt with by way of a complaint to the MMO and then via judicial review (JR) or a statutory appeal process. The MMO does not see any need for licences which are deemed to be granted under the DCO to be made subject to any special requirements to which a marine licence issued by the MMO would not be subject to.

We agree that Section 120 prescribes what can be included in the DCO. Here, Section 120(1) references that the order may contain requirements in connection with the development for which the order is granted (including any conditions on other consents



and permissions which would have been required if this were not a NSIP). Whilst S120(4) does reference that the Order may make provision for the matters listed in Part 1 of Schedule 5, Section 120(4) links back to S120(3) which indicates that arbitration can only be included in the provisions relating to, or matters ancillary to, the development for which consent is granted. In other words, arbitration can be applied to those elements of the DCO which are necessary to support the primary development authorised under the DCO and not to those matters set out in Section 120(1) i.e. the conditions which would have been attached to a stand-alone marine licence. It seems to the MMO that the provisions of the DML are provisions which should have been set out in a marine licence were the activity not an NSIP. This includes provisions which fall into S120(1) and not into S120(4). Even if it were appropriate to apply arbitration to the DML under S120(3) provided that the DML may include the provisions in Part 1 of the Schedule, there is a direction to include such matters. This direction must be based on whether the inclusion ought to be necessary and proportionate, and the MMO is of the view that this is not the case for Hornsea Three.

In any event, arbitration should be a measure of last resort, following open discussions and debates between the regulator, developer and relevant stakeholders. The current draft DCO and DMLs imply that arbitration will be the first point of call should any difference in opinion be encountered. This implication is supported by several DML conditions, specifically highlighting the referral to arbitration in case of any difference. The MMO has serious concerns around its regulatory decisions being subject to a private arbitration process. It is an important principle that environmental decision making should be open and transparent to allow the public to participate in decisions which affect their environment. It seems to the MMO that the application of a private arbitration process to our regulatory decisions is contrary to this principle and should be resisted.

DCO Schedule 1 - Authorised project development and requirements

4.2 Part 1(1) Work No. 2 and 3 (d) (page 29/30) - Cable crossings

The ES project description includes an assessment of up to 44 cable crossings. The MMO recommends that the maximum number of cable crossings should be included in the DCO and DMLs. Additionally, the DML should reflect the maximum limits of cable protection deposit for each crossing. It is in line with best practice to include the maximum parameters as assessed in the ES within the DCO to provide a control mechanism that the maximum limits for both the overall project and for individual cable crossings are not exceeded in the event that project parameters change. This will directly reduce the risk of misunderstandings at a later date. This should be further provided in both Schedules 11 and 12.

4.3 Part 1 (1) Work No. 15 (c) (page 31) - Disposal volumes



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The MMO notes that disposal volumes have been clarified as 3,563,133m³. This does not align with the volume of disposal material assessed in the site disposal characterisation report and the MMO requests that this is amended for clarity. In the Applicant's Response to the Planning Inspectorate's Section 56 advice – Relationship Between Design Parameters Draft Development Consent Order and Environmental Statement (July 2018), boulder clearance has not been added to the quantity of material planned for disposal as part of the proposed development. The MMO advises that boulder clearance is regarded as an act of disposal.

4.4 Part 3 (5) (2) (page 35) - Cable protection

The Applicant has confirmed in their Response to the Planning Inspectorate's Section 56 advice – Relationship Between Design Parameters Draft Development Consent Order and Environmental Statement (July 2018) that discrepancies in cable length and the area of cable protection required is as a result of the interconnector cable appearing on both dMLs. The MMO requests that a requirement is added to provide notice pre-construction as to under which dML the interconnector cables will be built, to reduce the maximum cable length and cable protection volume that can be used on the other dML. This would require the dMLs to separately and clearly state the volume of cable protection required for the interconnector and for relevant condition wording to be amended accordingly.

It is noted that the difference in area of cable protection volumes between the DCO and the ES has not yet been explained and further clarification is requested on this. The DCO and dMLs should include both maximum volumes and areas of cable and scour protection.

The footprint of cable protection (excluding cable crossings) proposed in the DCO identifies a maximum footprint of 1,540,700m² in addition to the maximum footprint for cable crossings of 747,500m². Calculated together the DCO proposes a maximum footprint for cable protection of 2,288,299m². The cable protection footprint proposed in the ES project description is as follows:

- Export cable: 802,200m² (Table 3.46, page 37)
- Cable crossing: 802,200m² (Table 3.48, page 38)
- Array cables: 581,000m² (Table 3.33, page 29)
- Interconnectors: 157,500m² (Table 3.50, page 38)

The total volume of cable protection proposed in the ES project description therefore amounts to 2,342,900m², which is significantly higher than that proposed in the DCO. The MMO requests further clarification of the cable protection footprint and volume and for corrections to be made to the DCO, DMLs and ES accordingly.



Schedule 11 Deemed Marine Licence – Generation Asset

4.5 Part 1 (11) (page 129) – Arbitration

This condition is a repeat of the Arbitration Article (36). As discussed above in paragraph 4.1, the MMO consider the conditions and timeframes set out under this article as inappropriate.

4.6 Part 2 (11) (page 134) - Pre-construction plans and documentation timescales

The MMO recommends that Condition 11 is amended to include appropriate timescales to allow for consideration and discharge of the relevant conditions prior to the commencement of the works. The MMO recommends that the following text is added to Condition 11:

Pre-construction plans and documentation are to be submitted to the MMO in accordance with the following —

at least six months prior to the first survey, detail of the pre-construction surveys and an outline of all proposed monitoring;

at least six months prior to construction, detail on construction monitoring;

at least six months prior to commissioning, detail of post-construction (and operational) monitoring;

unless otherwise agreed in writing with the MMO.

Given the numerous issues that the MMO encounters throughout this process and the increased size and complexity of Round 3 projects, the MMO consider that a 6 month submission timeframe would be more appropriate. With a steadily increasing number of offshore developments within the North Sea and the increasing size of individual projects, it has become increasingly challenging to ensure that environmental impacts are low. This is a result of for example increasing concerns regarding the impacts and the regulation of underwater noise or the increasing concerns regarding impacts on ornithological receptors. New challenges have arisen as a result of a number of factors such as the availability of new guidance or scientific evidence, or simply that the maximum thresholds to conclude no adverse effects being reached for designated sites. The MMO therefore consider that a 6 month timeframe is more appropriate. Furthermore, this would be in line with the Historic England Written Scheme of Investigations, which is generally submitted 6 months prior to construction.

4.7 Part 2 (11) (1) (b) (page 135) - Pre-construction plans and documentation

The MMO recommends that submission of a construction programme should also include a construction monitoring plan in line with the In Principal Monitoring Plan outlining all monitoring requirements to be undertaken during the construction works. Proposed timings for mobilisation should include whether such works will be carried out as a single offshore phase or as multiple phases.



Furthermore, the MMO recommends that the construction programme should include details of pre-construction surveys, baseline report format and content, construction monitoring, post-construction monitoring and related reporting in accordance with the relevant monitoring conditions in the DML(s).

4.8 Part 2 (11) (1) (f) (page 136) – Pre-construction plans and documentation timescales

The MMO considers that the proposed time scales are inappropriate to allow for sufficient discussion and approval of pre-construction surveys and on-going monitoring. The MMO recommends that monitoring plans should be submitted at least 6 months prior of the commencement of any pre-construction surveys and on-going monitoring to enable sufficient consultation time and the completion of the pre-construction surveys prior to commencement.

4.9 Part 2 (12) (1) (Page 137) – Timeframes

This condition sets out the timeframe for the submission of pre-construction plans and documentation 4 months prior to the construction. Given the numerous issues that the MMO encounters throughout this process and the increased size and complexity of Round 3 projects, the MMO consider that a 6 month submission timeframe would be more appropriate (see paragraph 4.6). The MMO therefore consider that a 6 month timeframe is more appropriate. Furthermore, this would be in line with the Historic England Written Scheme of Investigations, which is generally submitted 6 months prior to construction.

4.10 Part 2 (12) (2) (page 137) – Timeframes

The MMO does not consider that a determination within 8 weeks would provide sufficient time to undertake a document review, consider all potential impacts, consult with the appropriate stakeholders, resolve potential issues with the developer and approve pre-construction documentation and plans. Acting in our role as the enforcing body, it has previously been within the MMOs remit to determine timelines for pre-construction documentation sign off. An 8 week timescale for document review and responses would not be practical given consideration times required by statutory consultees and the requirement for the MMO to negotiate between the undertaker and concerned stakeholders to address any issues raised. Pre-construction documentation and plans have previously consisted of lengthy documents with a number of issues outstanding to resolve. The MMO therefore considers that an 8 week approval process would result in an unsupportable burden upon the regulator and stakeholders. This has been under discussion with the Applicant who has confirmed that a 4 month timescale would be acceptable. As outlined in the MMOs comment made under point 4.9 the MMO considers that pre-construction documentation should be submitted 6 months prior to commencement of works to allow time for the required stakeholder consultation and for any necessary amendments to be negotiated and approved.



4.11 Part 2 (12) (3) (page 137) – Arbitration

Condition 2 is a repeat of the Arbitration Article 36. As discussed above in paragraphs 4.1, the MMO consider the conditions and timeframes set out under this article to be inappropriate since Article 36 and Schedule 13 as included in the DCO would be contrary to the intentions of Parliament and usurp the role of the MMO as a regulator. The MMO therefore request the removal of this condition from the DMLs.

4.12 Part 2 (15) (1) (page 138) – Monitoring and Surveys

The MMO recommends that Condition 15 (1) should be amended to include the following:

the survey proposals must specify each survey’s objectives and explain how it will assist in either informing a useful and valid comparison with the post-construction position and/or will enable the validation or otherwise of key predictions in the environmental statement; and

the baseline report proposals must ensure that the outcome of the agreed surveys together with existing data and reports are drawn together to present a valid statement of the pre-construction position, with any limitations, and must make clear what post-construction comparison is intended and the justification for this being required.

The MMO consider that there is the requirement for this condition wording to be included in the DMLs (Schedule 11 and 12) to ensure consistency throughout the reports, to ensure they are fit for purpose, to provide clarity to all consultees and to facilitate an easy review of the documents. Furthermore, the MMO consider that clear recording of this intent within the DCO would directly reduce the risk of misunderstandings at a later date. The MMO would be content to include the phrase ‘unless otherwise agreed with the MMO’ to allow for more flexibility to the Applicant in the event that no pre – or post – construction monitoring is required.

4.13 Part 2 (15) (2) (page 138) – Monitoring and surveys

The MMO recommends that the post-construction monitoring condition explicitly includes a requirement to carry out up to three years of post-construction monitoring with the duration specified for these surveys, unless otherwise agreed following analysis of post-construction monitoring data. The MMO suggests addition of the following condition:

The undertaker must carry out the surveys agreed under sub-paragraph (add reference) for up a minimum of 3 years post-construction, which could be non-consecutive years, and provide the agreed reports in the agreed format in accordance with the agreed timetable, unless otherwise agreed in writing with the MMO in consultation with the relevant statutory nature conservation bodies.



The phrase ‘unless otherwise agreed with the MMO’ was included to allow more flexibility around the monitoring requirements in the event that 3 year monitoring may not be appropriate, following post-construction data analysis.

During construction the MMO recommends that Condition 15 (2) (b) should set out all requirements for monitoring to be undertaken during the construction phase. The MMO proposes that the following conditions should be included in draft DCO conditions 15(2)(b)(i);

The results of the initial noise measurements monitored in accordance with subparagraph (add reference) must be provided to the MMO within six weeks of the installation of the first four piled foundations of each piled foundation type. The assessment of this report by the MMO will determine whether any further noise monitoring is required.

4.14 Part 2 General Comment (page 139) – Dredge and Disposal

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.

Schedule 12 Deemed Marine Licence – Transmission Asset

4.15 Part 1 (11) (page 146) – Arbitration

This condition is identical to Schedule 11. Please see paragraph 4.5 for MMO comments

4.16 Part 2 (12) (page 151) - Pre-construction plans and documentation timescales

This condition is identical to Schedule 11. Please see paragraph 4.6 for MMO comments.

4.17 Part 2 (12) (1) (b) (page 151) - Pre-construction plans and documentation

This condition is identical to Schedule 11. Please see paragraph 4.7 for MMO comments.

4.18 Part 2 (12) (1) (f) (page 152) – Pre-construction plans and documentation timescales

This condition is identical to Schedule 11. Please see paragraph 4.8 for MMO comments.

4.19 Part 2 (13) (1) and (2) (page 154) – Timeframes

This condition is identical to Schedule 11. Please see paragraph 4.9 and 4.10 for MMO



comments.

4.20 *Part 2 (13) (3) (page 154) – Arbitration*

This condition is identical to Schedule 11. Please see paragraph 4.11 for MMO comments.

4.21 *Part 2 (16) (1) (page 154) – Monitoring and surveys*

This condition is identical to Schedule 11. Please see paragraph 4.12 for MMO comments.

4.22 *Part 2 (16) (2) (page 154) – Monitoring and surveys*

This condition is identical to Schedule 11. Please see paragraph 4.13 for MMO comments.

4.23 *Part 2 (16) (2) (c) (i) (page 155) – Monitoring and surveys*

The MMO requests further clarification of the terms ‘representative proportion’ and ‘sensitive cable protection’.

4.24 *Part 2 (page 155) – Dredge and Disposal*

This condition is identical to Schedule 11. Please see paragraph 4.14 for MMO comments.

Schedule 13 – Arbitration Rules

4.25 *General comment*

The MMO notes that the introduction of the arbitration schedule and subsidiary conditions is a change from the established process. The explanatory memorandum highlights the developer’s intention to ensure a quick dispute resolution and a timely delivery of the project. It is the MMO’s opinion that the proposal goes beyond providing greater certainty.

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 36 and Schedule 13. Furthermore, the MMO consider the justification provided in the explanatory memorandum to be insufficient, given that the evidence for such a requirement provided is the reference to PINS advice note 15: Drafting Development Consent Orders, which suggests the inclusion of a route for issue resolution. The MMO considers the inclusion of the proposed arbitration process to be in excess of this Planning Policy Guidance Note.

In the MMO’s opinion, arbitration should be a measure of last resort, following open discussions and debates between the regulator, developer and relevant stakeholders.



The current draft DCO and DMLs imply that arbitration will be the first point of call should any difference in opinion be encountered. This implication is supported by several DML conditions, specifically highlighting the referral to arbitration in case of any difference.

Generally, the process should allow for the Secretary of State to refuse an arbitration request due to other issue resolution options being available. The MMO therefore consider that the proposal for an independent arbitration process should be removed, together with the subsidiary conditions proposed in the draft DCO. Further comment on the proposed arbitration process can be found in section 4.1 above.

4.26 Provision 3 – Timelines

The timeline within this provision would require the MMO to undertake consultation with its consultees and produce reports within 14 days of notice. The MMO considers the time period proposed to be insufficient to allow for appropriate consultation and any necessary legislative assessments which may arise from the fulfilment of conditions. The proposed 14 day timescale for responses would present unacceptable resource implications for the MMO and its consultees. The MMO generally recommend time scales of a minimum of 6 weeks. This includes a 4 week consultation period and a 2 week determination period.

4.27 Provision 6 - Costs

This provision stated that the award of costs will be made by the arbitrator and would be based on the degree of success of the party as stated under provision 6 (4). It is the MMOs interpretation that, in the event that any arbitration decision goes against the opinion of the MMO, the MMO may be required to cover any cost for the arbitration process including the costs to the developer and other parties involved.

The MMO considers that such an approach would directly contradict the ‘Polluter Pays’ principle which underlines a sustainable approach to environmental consenting. The MMO considers that any costs for arbitration should be solely borne by the Applicant, unless it is deemed that a party has acted unreasonably or in bad faith. Moreover, such an approach may encourage developers to resolve issues by challenging them through arbitration early in the consideration process, since only limited discussions and expert involvement would be expected to have taken place at this stage

5. Environmental Statement (ES):

Marine Processes

Major comments



6.1 In order to ensure the integrity of the offshore structures, scour and cable protection have been proposed. The information provided is lacking detail however as set out in the MMO's RR (Point 3.2). Following the Applicant's response to the MMO's RR received on 12/09/18, the MMO agrees that site specific estimates of scour depth are required and these are dependent on the assumptions or scenarios that are included in the process and would form a realistic 'worst case' scenario. The MMO however needs to have confidence that the scour assumptions and processes are robust and appropriate to whichever design is used. At present, the assessment provided is generic (not site specific) and incomplete in that potential scour depths for each structure (GBS, Tripod or Monopile) have not been identified. It is not therefore possible for the MMO to have confidence that the scour assumptions are robust and appropriate for the design used. A clarification note has been provided to the MMO who has highlighted a number of outstanding issues. Following this, the MMO will be able to update their position.

Minor comments

6.2 The MMO highlighted remaining concerns regarding impacts from cable protection on sediment transport and coastal processes in relation to the North Norfolk coast, where the proposed cable route runs parallel to the coast. These concerns were set out in the MMO's RR under point 3.7. Further information should be provided to allow a full assessment on coastal processes. A clarification note has been provided to the MMO who has highlighted a number of outstanding issues. Following this, the MMO will be able to update their position.

6.3 Concerns have been set out in the MMO's RR in relation to the target depth for export cables and how this will be achieved (Point 3.9). Since a target depth of 2m for the export cable is proposed, the MMO requests clarification as to whether any contingency has been included either from needing to over-dredge due to unpacked sediments or active sandwaves requiring repeat dredging (Table 1.11 – ES page 42). Similarly, clarification is required as to whether there is contingency in sandwave removal estimates. A clarification note has been provided to the MMO who has highlighted a number of outstanding issues. Following this, the MMO will be able to update their position.

6.4 The MMO has requested further explanation as to how the 170m² spud can mark would be generated as displayed in Table 1.11 (ES - Page 43) (RR - Point 3.10). Following Orsted's response to the MMO's RR received on 12/09/18, the MMO remains unclear and requests further clarification on whether for a 2m diameter spud can, the scour pit will be a further 5.35m (approximately) in diameter? (i.e. 2+5.45m



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equating to 170m²).

6.5 Section 1.11.2.66 – The MMO suggests that more context should be provided around the 1,329m³ of excavated materials from various MCZs. A clarification note has been provided to the MMO who has highlighted a number of outstanding issues. Following this, the MMO will be able to update their position.

Benthic Ecology

Major comments

6.6 Pre and post construction monitoring of Annex 1 features within and outside SACs along the offshore cable corridor has been identified within the In-Principle Monitoring Plan. However, the pre-construction monitoring will only be used for mitigation purposes and the post construction monitoring to monitor the effects of cable protection to determine the success of the protection measures. Whilst this is entirely appropriate, monitoring of the long-term effects of the presence of the wind turbines and placement of cable protection on the sediments and benthic fauna should be considered. This is particularly important given the size of the windfarm, potential length of construction period and the number of conservation sites affected by the project. Whilst the MMO recognise that broad scale monitoring may not be appropriate, targeted monitoring is recommended (pre- and post-construction) to monitor the secondary impacts within the Array area, outside the array area and at suitable reference sites.

Furthermore, monitoring of the cable route is proposed only to determine the success of sensitive cable protection measures within the Wash and North Norfolk Coast SAC, the North Norfolk Sandbanks and Saturn Reef SAC and the MCZ. The MMO recommends that further monitoring should be proposed to determine the impacts of sand wave clearance and boulder clearance on the integrity of the features present within the SACs/MCZ.

Fish and Shellfish

Major comments

6.7 In the MMO's RR (Point 5.1) a lack of clarity was highlighted as to whether the scenario of concurrent piling (Page 27, Chapter 3 of the ES) had been taken into consideration for the modelling. If concurrent piling is proposed, the MMO recommended that the noise modelling should reflect this scenario and a revision of the mapped noise contours should be presented to identify any potential overlap with herring spawning grounds. The MMO remains concerned that the potential for concurrent piling has not been modelled sufficiently in order to assess any potential impact on the Flamborough Head herring spawning ground.



The noise contours from the modelling presented in the ES indicate that noise and vibration from piling will not extend into the Flamborough Head spawning grounds. However, the combined noise and vibration output of two rigs operating at the same time may likely be greater than one single piling rig. Consequently, the noise and vibration generated under this scenario may propagate over a greater distance than that predicted in the ES and therefore it is possible that noise and vibration may extend into the herring spawning grounds at Flamborough Head.

If the maximum hammer energy of 5000kJ (used in the modelling) is required to install one pile at Hornsea Project 3, then the output of noise for the installation of two piles each using a maximum hammer energy of 5000kJ should be modelled or predicted and noise impact ranges presented to reflect this scenario. Without this additional noise modelling, the MMO is not confident that should concurrent piling be undertaken, the noise impact on the Flamborough Head spawning ground would not be significant.

The MMO further note that the Applicant has stated the actual piling phase would potentially cover 2.5 years and that piling may occur intermittently during this time. The MMO understand that the full project scope may not be known at this time, however it would be beneficial to understand the current estimated total piling duration for the project, especially if any concurrent piling works would cause noise and vibration to propagate into the herring spawning grounds at Flamborough Head.

- 6.8 The MMO has confirmed that no fish specific monitoring surveys would be required. Given the size of Hornsea Project 3 array area however and as the substrate is considered to be largely 'preferred' sandeel habitat, the MMO requests that Particle Size Analysis (PSA) data is collected during post-construction benthic monitoring and used to monitor and assess sandeel habitat suitability. Any sandeels caught in grab samples during benthic monitoring should be recorded by species and length. Please see Annex 1 for the rationale behind this request.

Underwater noise modelling

Volume 4 – 3.1 – Subsea Noise Technical Report:

- 6.9 Further explanation was requested by the MMO in our RR (Point 6.9) as to why the linear fit is considered to give a worst case estimate (Figure 6.1 of the ES). Following the Applicant's response, this is still unclear to the MMO and further clarification is requested, including which alternatives to a linear fit have been analysed to justify the Applicant's conclusion.
- 6.10 Para 6.3.1.6 of Subsea Noise Technical Report: The report should explain what is meant by 'extrapolation' here. Furthermore, the Popper *et al.* (2014) criteria for continuous sources are based on the SPL rms metric (not SELcum as suggested in the report). The Applicant provided further clarification in the RR comments received on



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12/09/18 and via email on 20/09/18. The MMO advise that the predicted source level for the 170 m rotor diameter is 158.5 dB re 1 μ Pa (RMS) at 1 m (as per Table 6.2). This would be above the TTS threshold (of 158 dB rms for 12 h) for fish with swim bladders involved in hearing, although the potential risk of a species remaining close to the source for 12 hours to experience TTS would be low. It is clear to the MMO that the predicted values were extrapolated as SELcum values, however further clarity is requested on the method of 'extrapolation' in the report.

6.11 The MMO notes that a fleeing animal model has been used for both marine mammals (section 3.2.2.5) and fish (section 3.2.2.8). For marine mammals, scientific evidence of displacement suggests it is not unreasonable for the cumulative Sound Exposure Level (SEL) to be calculated based on a fleeing animal exposure model where, as the animal moves away from the sound source, it is exposed to a progressively reducing noise level, e.g. as defined in Lepper *et al.* (2012). However, the MMO is not aware of scientific evidence which would support fleeing in fish. The MMO notes that the evidence does not provide empirical evidence to support fleeing in fish. Popper *et al.* (2014) state that "in terms of behavioural responses, Feist (1992) and Anderson (1990) showed that fish might move away from a pile driving source". In the absence of evidence to support the fleeing assumption, this assumption is not valid and fleeing should not be presumed.

The MMO recommend that further evidence should be provided, or alternatively the effects on fish should be modelled for a stationary receptor for fish (for mortality and potential mortal injury, recoverable injury and TTS). To allow an assessment of the behavioural responses of herring at Flamborough, the MMO recommend that the received levels of single plus Sound Exposure Levels at Flamborough Head are presented using the worst case scenario (concurrent piling).

6. Responses to the ExA's Written Questions

Please find the table including the MMOs response to the ExA Written Questions in the following document EN010080-000955 Questions by ExA Deadline 1_MMO_final.

7. Comments on any additional submissions

Following the submission of our Relevant Representation on the 20th July 2018, discussions have been ongoing between the Applicant and the MMO to resolve the issues raised. As part of this, the Applicant has submitted a number of clarification notes to the MMO for review. Please find below, detailed comments on each document.



7.1 The Wash and North Norfolk Coast SAC: Clarification Note – Baseline and impacts of cable installation

This document was submitted to the MMO in order to address the MMO's major concern in relation to the revised cable route which crosses through the Wash and North Norfolk Coast Special Area Conservation (SAC) and the limited availability of benthic survey data for the potentially impacted area. As part of this, the MMO questioned how the Applicant could justify the assumption of high data confidence when only very limited information was available to support this statement.

A drop down video survey has been undertaken and the predictions made by the Applicant regarding the sediments, habitats and potential recovery of the sediments are in line with what was predicted in the ES. Furthermore, the MMO notes that no biogenic or geogenic reefs have been observed within the survey area.

Although no new geophysical data has been collected within the reroute area of the nearshore export cable corridor, the MMO considers that the data analysed provides sufficient information for the baseline environment for the purpose of informing the EIA.

7.2 Sandwave Clearance Clarification Note

This document was submitted to the MMO to address concerns in relation to the assessment of the impacts of sandwave clearance for cables within Hornsea Three offshore cable corridor and their recoverability. The MMO's main concern was that the potential impacts of sandwave clearance have not been assessed properly.

Benthic Ecology

Following the MMO's review of the clarification note, the MMO is confident that the evidence provided suggests that the habitats affected by sandwave levelling would recover, albeit at different rates dependent on the sediment type. The MMO is content with this information.

Coastal Processes

The MMO recommend for the following points to be addressed by the Applicant:

- The historic assessment of clearance volumes for the six export cables is robust. However, the hydrological assessment is not described in detail. Furthermore, recent Notice to Mariners suggest that a further measurement campaign is underway, in order to provide robust measurement of the current regime and hence sediment transport. The MMO requests that more detail in relation to the hydrological assessment is provided.



- Section C1 and C2 - In order to assess the magnitudes of potential transport rates, histograms on the Race bank export cable have been produced. Could these be reconfigured with the site as the x-axis (i.e. Sites 1 to 10) and the magnitude within the category? This would significantly, aid interpretation.
- Section C3 – What is the interpretation of the Progressive vector diagrams in C3?
- Section 3.10, the original 1m resolution bathymetry was resampled to 5m resolution – why is this considered more accurate for this assessment?
- In Section 4.6 a selection of potential transport rates magnitudes have been defined – are these tidal transport rates and how is the frequency of these rates assessed? Further clarification should be provided.
- Section 4.5 – a reference source was not found. Can this please be provided?

7.3 Cable Protection in Designated Sites Clarification Note

This document was submitted to the MMO to address concerns in relation to the assessment of the impacts of cable protection within Hornsea Three array area and offshore cable corridor. The MMO's main concern was that the impacts from cable protection had not been assessed properly.

Benthic Ecology

Following the MMO's review of the clarification note, the MMO is confident that the evidence provided suggest that the habitats affected by cable protection will recover, albeit at different rates dependent on sediment mobility. The MMO is content with this information.

Coastal Processes:

The MMO recommend for the following points to be addressed by the Applicant:

- The 10% allocation for cable protection measures appears to be appropriate given the historical data. However, it should be noted that the operator or trenching tool may change, or insufficient geotechnical data has been collected and thus rates of cable protection may vary in the future.
- Section 3 – Clarification should be provided as to why the literature review of potential impacts of cable protection is restricted to Orsted operations. For instance, rock armouring at the Thanet windfarm was extensive (>200km) in an active sediment transport zone.



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8. Notification by Statutory Parties and certain Local Authorities who wish to be considered as an Interested Party

The MMO wish to be considered as an Interested Party.

9. Notification of wish to make oral representations at the Issue Specific Hearing on the draft Development Consent Order (DCO)

The MMO wish to make oral representation at the Issue Specific hearing on the draft Development Consent Order on the following topics:

All aspects that relate to the marine environment

Article 36 – Arbitration

Schedule 11 and Schedule 12

10. Notification of wish to make oral representations at the Issue Specific Hearing on Environmental matters

The MMO wish to make oral representation at the Issue Specific hearing on Environmental Matters on the following topics:

Marine Processes

Benthic Ecology

Fish and Shellfish

Marine Mammals and Underwater Noise

In Principle Monitoring Plan

11. Notification of wish to have future correspondence electronically

The MMO wish to have future correspondence electronically.



Annex 1: PSA data – Rationale

Sandeel vulnerability – a brief overview

Sandeels are UK BAP species which are ecologically important prey species for a number of marine fish, mammals and birds. In particular, lesser sandeel are a species of principle importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Sandeel are demersal fish which spawn in the areas which they inhabit. They have specific habitat requirements in terms of the substrate in which they live, so they are particularly vulnerable to marine developments which either disturb/remove their habitat or change the composition of the substrate in which they live.

The potential negative impacts to sandeel from OWF developments include:

- Loss of habitat (within the project lifetime) within the footprint of WTGs, offshore substations, rock placement and other associated infrastructure;
- Temporary loss of habitat from trenching, jetting and dredging during sandwave clearance, bed levelling and cable laying activities; and,
- Disturbance from underwater noise and vibration caused by construction activities, particularly piling,

The magnitude of effect of such impacts can be further enhanced, should the activities described above be undertaken during the winter hibernation period when sandeel are most vulnerable.

Cumulative impacts of marine offshore developments in the Southern North Sea

Large areas of the Southern North Sea that are considered to be suitable sandeel habitat are currently in the operational, construction or planning stages for large offshore windfarm developments e.g. Hornsea 1, 2, 3 and 4, Dogger Bank Teeside A and B (Sofia), Dogger Bank Creyke Beck A & B; East Anglia One North Tranches 1 and 2, East Anglia Three, to name but a few.

There is currently very little monitoring being undertaken to investigate the cumulative impacts to sandeel as a result of the construction and operation of offshore windfarms. This makes it difficult to ascertain whether the installation and presence of windfarms is having any effect on sandeel populations. In addition, a lack of post-construction monitoring makes it difficult for windfarm developers to validate ES predictions concerning impacts to sandeel.

The current status quo for EIAs is to assume that as the North Sea is a 'large area', impacts to sandeel resulting from a particular development are unlikely to be significant.



The rationale given is that there are other areas of suitable habitat in the wider Southern North Sea area which sandeel can inhabit. However, in my opinion, this sort of conclusion overlooks two key issues;

- There are many areas of the wider Southern North Sea area that are not suitable sandeel habitat, e.g. incompatible substrate composition, water depth.
- Large areas of the Southern North Sea are already being utilised by marine developments including OWFs and aggregate extraction, which further reduces available sandeel habitat.

Why collect Particle Size Analysis (PSA) data to monitor sandeel habitats and why observe sandeels caught in grabs?

In order to carry out sandeel-specific monitoring in the HOW03 area, a dedicated sandeel dredge survey would be required, which would be costly to the developer.

As an alternative, analysis of PSA data can be used to demonstrate that the seabed has remained/recovered/returned to an environment which is still suitable as a spawning, nursery ground and habitat for sandeels.

Any catches of sandeels from grabs will provide supplementary evidence of their presence in the windfarm and export cable route areas post-construction, thus supporting the findings of PSA data.

As a minimum the monitoring approach should look at suitable habitat pre- and post-construction. The data collected should be used to carry out a habitat assessment, i.e. as described in Latta et al. (2013). Ørsted have already undertaken a sandeel habitat assessment using this method to inform the EIA. The PSA sampling needs to be repeated post-construction to map any differences.

Although this method would not provide information on sandeel abundance it would indicate availability of suitable habitat and distribution changes.

By collecting PSA data and observing occurrences of sandeels in grabs during benthic monitoring at the HOW03 site, Ørsted can support the predictions made within the ES for sandeels.

Additionally, PSA data and sandeel observations acquired during post-construction monitoring could be used to support predictions on the impacts to sandeels in future EIAs for other marine developments.

Attempting to monitor the potential cumulative impacts to sandeel resulting from offshore marine developments would require many years of study/survey and would need to take into account other factors such as climatic changes and fishing pressures. Instead, PSA



and sandeel observation data could potentially contribute to data sets on the cumulative impacts of marine developments in the Southern North Sea.

The suggested approach of undertaking PSA and observing sandeels in grab samples will be easier and cheaper to undertake, and is not considered an onerous task as it forms part of a post-construction benthic monitoring programme.

This approach is regularly undertaken as part of benthic monitoring programmes for marine aggregate extraction licences, so that licence holders can demonstrate that they are managing an area effectively by providing evidence that the substrate composition they are dredging continues to be a suitable site for sandeel habitat.

