

# DOGGER BANK D WIND FARM

## Preliminary Environmental Information Report

Volume 2

Appendix 10.1 Consultation Responses for Benthic  
and Intertidal Ecology

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## Glossary

Term	Definition
Design	All of the decisions that shape a development throughout its design and pre-construction, construction / commissioning, operation and, where relevant, decommissioning phases.
Development Consent Order (DCO)	A consent required under Section 37 of the Planning Act 2008 to authorise the development of a Nationally Significant Infrastructure Project, which is granted by the relevant Secretary of State following an application to the Planning Inspectorate.
Effect	An effect is the consequence of an impact when considered in combination with the receptor's sensitivity / value / importance, defined in terms of significance.
Environmental Impact Assessment (EIA)	A process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information and includes the publication of an Environmental Statement.
Environmental Statement (ES)	A document reporting the findings of the EIA which describes the measures proposed to mitigate any likely significant effects.
Evidence Plan Process (EPP)	A voluntary consultation process with technical stakeholders which includes a Steering Group and Expert Topic Group (ETG) meetings to encourage upfront agreement on the nature, volume and range of supporting evidence required to inform the EIA and HRA process.
Expert Topic Group (ETG)	A forum for targeted technical engagement with relevant stakeholders through the EPP.
Impact	A change resulting from an activity associated with the Project, defined in terms of magnitude.
Mitigation	Any action or process designed to avoid, prevent, reduce or, if possible, offset potentially significant adverse effects of a development.  All mitigation measures adopted by the Project are provided in the Commitments Register.
Project Design Envelope	A range of design parameters defined where appropriate to enable the identification and assessment of likely significant effects arising from a project's worst-case scenario.  The Project Design Envelope incorporates flexibility and addresses uncertainty in the DCO application and will be further refined during the EIA process.
Scoping Opinion	A written opinion issued by the Planning Inspectorate on behalf of the Secretary of State regarding the scope and level of detail of the information to be provided in the Applicant's Environmental Statement.

Term	Definition
	The Scoping Opinion for the Project was adopted by the Secretary of State on 02 August 2024.
Scoping Report	<p>A request by the Applicant made to the Planning Inspectorate for a Scoping Opinion on behalf of the Secretary of State.</p> <p>The Scoping Report for the Project was submitted to the Secretary of State on 24 June 2024.</p>
Study Areas	A geographical area and / or temporal limit defined for each EIA topic to identify sensitive receptors and assess the relevant likely significant effects.
The Applicant	SSE Renewables and Equinor acting through 'Doggerbank Offshore Wind Farm Project 4 Projco Limited'.
The Project	Dogger Bank D Offshore Wind Farm Project, also referred to as DBD in this PEIR.

## 10.1 Consultation Responses for Benthic and Intertidal Ecology

1. **Volume 1, Chapter 10 Benthic and Intertidal Ecology** for the Dogger Bank D Offshore Wind Farm (herein referred to as ‘the Project’ or ‘DBD’) has been informed by consultation with the Planning Inspectorate and stakeholders following the publication of the Scoping Report (Royal HaskoningDHV, 2024) and the comments contained within the Scoping Opinion (Planning Inspectorate, 2024). This appendix contains details of the relevant comments for **Volume 1, Chapter 10 Benthic and Intertidal Ecology** and the Applicant’s responses in **Table 10.10-1**.
2. The Applicant previously submitted a Scoping Report in 2023 based on project parameters at that time. The 2024 Scoping Report (Royal HaskoningDHV, 2024) and adopted Scoping Opinion (Planning Inspectorate, 2024) have superseded the 2023 Scoping Report and as such consultation responses on the 2023 Scoping Report are not considered further in this document except where they are included in the 2024 consultee responses and remain relevant to the Project.

*Table 10.10-1 Consultation Responses for Benthic and Intertidal Ecology*

Stakeholder	Document / Meeting Date	Comment	How and Where Addressed in the PEIR
Marine Management Organisation (MMO)	Scoping Opinion (02/08/24)	The MMO welcomes the decision to scope in transboundary effects associated with sediment plumes during construction, operation, and decommissioning phases of DBD which will be assessed alongside other cumulative impacts.	Noted, transboundary effects are assessed in <b>Section 10.9</b> and utilise the sediment plume modelling assessed in <b>Chapter 8 Marine Physical Processes</b> .
MMO	Scoping Opinion (02/08/24)	Adequate justification has been provided regarding the scoping out of Sediment Heating from Export Cables as the theoretical capacity for heat transfer from the cables to the surrounding benthic assemblage is negligible. However, the MMO was unable to locate references for the associated documents (Taormina <i>et al.</i> 2018; Brakelmann and Stammen, 2017) on page 358 (Section 13 References) of the scoping report (referenced in paragraph 5) and recommends that all references are included in the subsequent assessments.	Full reference list is provided in the chapter and any references required can be sent across upon request.

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Stakeholder	Document / Meeting Date	Comment	How and Where Addressed in the PEIR
MMO	Scoping Opinion (02/08/24)	The MMO agrees with the Undertakers decision to scope out the impacts associated with the introduction of Invasive Non-Native Species from vessel traffic as this will be mitigated through adherence to relevant biosecurity measures. Similarly, with the justification provided and decision to scope out the impact of accidental release of pollutants as the embedded mitigation within the Project Environmental Monitoring Plan (PEMP) will be sufficient to reduce the likelihood of impact, this is also agreed. Outline plans would be welcomed as early as possible to be able to comment on these and ensure they are fit for purpose.	Noted, an outline PEMP is to be submitted alongside the PEIR and the embedded mitigation measures are presented in <b>Table 10-4 in Volume 1, Chapter 10 Benthic and Intertidal Ecology</b> .
MMO	Scoping Opinion (02/08/24)	The Undertaker recognises that additional datasets for the offshore assessment may be available on the Cefas OneBenthic database (data extraction tool available <a href="https://rconnect.cefas.co.uk/onebenthic_dataextractiongrabcor e/">https://rconnect.cefas.co.uk/onebenthic_dataextractiongrabcor e/</a> ). However, as this database is continually updated as datasets become available, it is recognised that appropriate datasets may be identified after the cut off for inclusion and therefore may not be included in the overall assessment. However, it should be clear within future documents the last time this was used along with justification for the cut off for inclusion date.	Where used, the databases and the last time accessed will be presented within the references.
MMO	Scoping Opinion (02/08/24)	The MMO defers to the relevant SNCB, Natural England regarding the impact of the Project to protected features within designated protected sites.	Noted.

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Stakeholder	Document / Meeting Date	Comment	How and Where Addressed in the PEIR
MMO	Scoping Opinion (02/08/24)	The MMO defers to the relevant SNCB Natural England regarding the impacts of the Project on the conservation features of the Dogger Bank Special Area of Conservation (SAC) and the Marine Conservation Zones (Holderness Inshore, Holderness Offshore and Swallow Sand) currently under assessment. The MMO notes that the 10km buffer around the Study Area, for the export cable corridor, overlaps with the Swallow Sand Marine Conservation Zone (MCZ) and this site may not be included in subsequent assessment should the likelihood of an overlap be reduced following any evidence-based reduction in buffer size.	Swallow Sands MCZ was originally screened into the MCZ assessment. However, due to project design changes, this MCZ is now further away from the Offshore ECC (>20km) and outside of the zone of influence (14km). Therefore, it has proposed to be screened out, as presented in <b>Marine Conservation Zone Assessment (MCZA) (document reference 7.11)</b> .
MMO	Scoping Opinion (02/08/24)	For benthic receptors, underwater noise, and vibration from piling activity, only during the construction phase has been scoped in. Noise and vibration have been scoped out for all other sources during the construction and operation. For example, the report (paragraph 394) concludes that “other underwater noise sources during construction (e.g. vessel traffic) are unlikely to cause significant effects on benthic receptors. There is no evidence to suggest this low level of noise and vibration has a significant effect on benthic ecology.” The MMO believes a more robust justification is required which draws on the peer reviewed literature. A recent review by Solan et al. (2023) concluded that “although the impact of noise pollution in marine invertebrates is understudied, an exhaustive and systematic revision of literature provided evidence that anthropogenic noise is detrimental not only to these species but also to the natural ecosystems they inhabit”, this should be addressed in the justification.	Vessel traffic is considered to be a low frequency noise source and was examined in Hudson <i>et al.</i> , (2022) which notes the following: Physiological indicators returned to baseline levels within approximately 48 hours and there was no observable difference in mortality between treatment and control animals detected. Noise from vessel activity, although an effect can be seen, invertebrates will only be impacted for a short period of time when the vessel is present, which will not be for an extended period of time, and therefore is proposed to stay scoped out for the assessment.



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Stakeholder	Document / Meeting Date	Comment	How and Where Addressed in the PEIR
The Planning Inspectorate	Scoping Opinion (02/08/24)	<p>Impacts from underwater noise and vibration during operation are proposed to be scoped out on the premise that maintenance activities will be the only source of impact (piling is only proposed during construction) and will be similar to construction impacts but lesser in extent and magnitude.</p> <p>In line with comments in row ID 2.1.13 above, the Inspectorate considers that the maintenance activities required for operation are not fully described in the Scoping Report and the parameters are unknown. NE has also highlighted (Appendix 2 of this Opinion) that maintenance activities can inhibit or slow recovery of impacted habitat. On this basis, the Inspectorate does not agree to scope out impacts from underwater noise and vibration during operation.</p> <p>The ES should provide an assessment where significant effects are likely to occur, or information demonstrating agreement with the relevant consultation bodies and the absence of a LSE.</p>	<p>Underwater noise and vibration during the operational phase will be to a much lesser degree than that of the construction phase due to no piling or Unexploded Ordnance (UXO) removal being required.</p> <p>Maintenance activities are described further in <b>Volume 1, Chapter 4 Project Description, Section 4.5.1.2</b>, whereby it states that activities fall under two categories; preventative maintenance and corrective maintenance. The worst noise impacts would come from geophysical surveys, if they are required, which will be subject to a separate marine licence and assessed closer to the time.</p>
The Planning Inspectorate	Scoping Opinion (02/08/24)	Scoping Report paragraph 376 states that impacts that span the life of the Proposed Development, such as habitat loss, will be considered as part of the operational phase and therefore, this is scoped out for construction. Temporary habitat loss/ physical disturbance during construction is proposed to be scoped into the ES separately. The Inspectorate agrees with this approach.	Noted.
The Planning Inspectorate	Scoping Opinion (02/08/24)	For the reasons set out in row ID 3.2.2 above, the Inspectorate agrees this matter can be scoped out.	Noted.

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Stakeholder	Document / Meeting Date	Comment	How and Where Addressed in the PEIR
The Planning Inspectorate	Scoping Opinion (02/08/24)	<p>Scoping Report paragraph 394 states that UXO clearance would only have small spatial and temporal impacts due to the nature of the activity and that there is no evidence to suggest the low level of noise and vibration from vessel movements would impact benthic ecology.</p> <p>On the basis of the above information, the Inspectorate agrees to scope this matter out.</p>	Noted.
The Planning Inspectorate	Scoping Opinion (02/08/24)	The Inspectorate agrees to scope out impacts from EMF during construction and decommissioning as the cables would not be live and therefore there would be no pathway for effect.	Noted.
The Planning Inspectorate	Scoping Opinion (02/08/24)	The Inspectorate agrees that by employing biosecurity measures secured through the PEMP (in line with the regulations and guidance listed in Scoping Report paragraph 390), significant effects are unlikely to occur and that this matter can be scoped out.	Noted.
The Planning Inspectorate	Scoping Opinion (02/08/24)	Based on scientific evidence, Scoping Report paragraph 415 states that increases in temperature will be limited to a very narrow band above the cables with negligible heat transfer and that modelling demonstrates that at 20cm below the seabed, temperature increase would be <2C. The Inspectorate agrees that as cables are proposed to be buried between 0.5 and 0.9m, or where this is not possible, be surrounded by cable protection measures (Scoping Report paragraph 122), significant effects on benthic ecology are unlikely to occur. This matter can be scoped out.	Noted. The minimum depth assessed is 0.2m with a target burial depth of 3.5m. Further information on the assessment of the burial depths is shown in <b>Section 10.7.2.6 of Volume 1, Chapter 10 Benthic and Intertidal Ecology</b> . Commitment ID: CO27 in <b>Appendix 6.3 Commitments Register</b> notes that a cable burial risk assessment (CBRA) will inform the cable burial depth that will be identified in the Cable Specification and Installation Plan that will submitted prior to construction.

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The Planning Inspectorate	Scoping Opinion (02/08/24)	The Inspectorate agrees this matter can be scoped out for the construction phase due to the introduced substrate not yet being present.	Noted.
The Planning Inspectorate	Scoping Opinion (02/08/24)	<p>Impacts could occur from installation / removal during construction and decommissioning and use of lubricants and chemicals for maintenance during operation. Standard best practice measures are proposed to be secured through the PEMP and the project would be required to adhere to control measures under the International Convention for the Prevention of Pollution from Ships (MARPOL) Convention Regulations. On this basis, the Inspectorate agrees that this matter can be scoped out.</p> <p>The ES should explain where appropriate control and best practice measures to reduce / avoid potential pollution events are secured through the draft Development Consent Order (dDCO) or other legal mechanism, for all phases of the Proposed Development.</p>	Noted, an <b>Outline PEMP (document reference 8.6)</b> has been drafted for the PEIR and will be updated following consultation for ES stage as needed.
The Planning Inspectorate	Scoping Opinion (02/08/24)	The ES description of baseline conditions should highlight that Dogger Bank is a relict sandbank. The scoping consultation response from NE (Appendix 2 of this Opinion) states that this increases its sensitivity to activities and pressures as there is no way for it to return into a stable condition once depleted.	The Undertaker consider that the advice stems from a focus on the underlying structure of Dogger Bank – which differentiates this SAC from ‘mobile/dynamic sandbank systems’ of other SACs – rather than the ecology of the biotopes themselves. The Dogger Bank is not a sand bank in terms of geomorphology or geology as its formation history is related to the glaciation of the North Sea (see <b>Section 8.6.1 in Volume 1, Chapter 8 Marine Physical Processes</b> ).

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			<p>The habitat H1110 for which the Dogger Bank is designated pertains to the ‘living’ section of the sand – which for most species at Dogger Bank is the surface to around 30cm depth.</p> <p>It is these surface sediments that are dynamic as demonstrated by:</p> <p>a) The sediment types present (sand and mixed sediments): and</p> <p>b) The fauna present (typically having low numbers of individuals, low species diversity and biomass and dominated by small, short-lived rapidly reproducing mobile species that can recolonise areas quickly following disturbance from wave and tidal action).</p> <p>The MarESA sensitivity assessments upon which the Undertakers have based their assessment are clear on the recoverability of these biotopes, which are assessed further in regard to all impacts as assessed in <b>Section 10.7 of Volume 1, Chapter 10 Benthic and Intertidal Ecology</b>.</p>
Environment Agency	Scoping Opinion (02/08/24)	Key legislation and receptors are missing from this chapter and subsequently there may be potential impacts that have not been identified. In addition, we have some advice in relation to assessment under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.	Noted, this legislation has been addressed and included within the assessments, and is assessed further as part of the regulations in <b>Volume 1, Chapter 9 Marine Water and Sediment Quality</b> .

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			The offshore Export Cable Corridor (ECC) passes through Yorkshire South WFD water body. Impacts to this water body are assessed within the Water Environment Regulations (WER) Compliance Assessment ( <b>Volume 2, Appendix 21.4 Water Environment Regulations Compliance Assessment</b> ). The assessment concludes to scope out biological effects on this water body from the Project and therefore it is not required to be assessed as part of the Benthic and Intertidal Ecology chapter.
Environment Agency	Scoping Opinion (02/08/24)	We also await the results of the “Site specific intertidal surveys” which will be undertaken in the summer of 2024 (July to September) mentioned in section 7.4 (paragraph 357).	Noted, the results of the intertidal survey can be found in <b>Appendix 10.2 Intertidal Ecology Survey Report</b> .
Natural England	Scoping Opinion (02/08/24)	<p>The Offshore Transmission assets of the development are within the following Marine Conservation Zones:</p> <p>Holderness Inshore MCZ</p> <p>Holderness Offshore MCZ</p> <p>The ES should consider including information on the impacts of this development on MCZ interest features, to inform the assessment of impacts on habitats and species of principle importance for this location.</p>	The impacts on the Holderness Inshore and Holderness Offshore MCZ are assessed in <b>MCZA (document reference 7.11)</b> .
Natural England	Scoping Opinion (02/08/24)	We broadly agree with the characterisation of the baseline environment but recommend that the Undertaker should highlight that Dogger Bank is a relict sandbank, which increases its sensitivity to activities and pressures as there is no way for it to return into a stable condition once depleted.	Noted.

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Stakeholder	Document / Meeting Date	Comment	How and Where Addressed in the PEIR
Natural England	Scoping Opinion (02/08/24)	We broadly agree with the benthic and intertidal ecology impacts identified by the Undertaker.	Noted.
Natural England	Scoping Opinion (02/08/24)	We consider that there are some impacts that have been scoped out that need to be scoped in. We note that aspects of the scoping have been based on the conclusions of the Teesside A and B (Dogger Bank C) Environmental Statement, Natural England does not agree with this approach, as detailed in our main summary point. Please see Annex C Section 7.4 for detailed comments below. Please also see comments in Annex C Section 4 in relation to cumulative effects.	<p>Annex C Section 4: The cumulative effect assessment for benthic will utilise the 7-tier approach, in line with Natural England's best practice. Further information can be found in <b>Section 10.8 of Volume 1, Chapter 10 Benthic and Intertidal Ecology</b>.</p> <p>Annex C Section 7.4: Responses are in the below comments.</p> <p>At the time of scoping, the best available data was used, and part of this data included the Teesside A and B (Dogger Bank C) Environmental Statement. Other data sources used in the assessment were highlighted in <b>Table 7-3</b> in the Scoping Report (Royal HaskoningDHV, 2024).</p>
Natural England	Scoping Opinion (02/08/24)	Updated formal conservation advice[1] for Dogger Bank SAC was produced in December 2022. This advice should be used to inform the PEIR and ES. We also advise the Undertaker to refer Natural England's 'Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards' for other data sources that may be available.	Noted, this formal conservation advice is used. Further assessment and consultation responses for designated sites can be found in <b>MCZA (document reference 7.11)</b> and the <b>Report to Inform Appropriate Assessment (document reference 5.3)</b> .
Natural England	Scoping Opinion (02/08/24)	We are broadly in agreement with the proposed approach to assessment presented but would expect a more thorough approach to assessment to be evidenced within the PEIR / ES.	Noted. Further information on the approach to assessment for benthic and intertidal ecology can be found in <b>Volume 1, Chapter 10 Benthic and Intertidal Ecology</b> .

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Stakeholder	Document / Meeting Date	Comment	How and Where Addressed in the PEIR
Natural England	Scoping Opinion (02/08/24)	There are a number of other construction-related impacts to consider in the ES. Impacts due to beach access, and location of temporary construction compounds, and also to sensitive areas of seabed / substratum (and species) in the intertidal and supratidal areas at landfall should also be taken into consideration. And any impacts to supporting habitats for mobile species from Designated sites.	<p>In terms of benthic and intertidal ecology, an intertidal survey was undertaken and the results shown in Volume 2, <b>Appendix 10.2 Intertidal Ecology Survey Report</b>. The findings of this survey in terms of the intertidal zone has been used for the assessments in <b>Section 10.7</b>.</p> <p>Location of onshore aspects and their impacts are assessed in <b>Volume 1, Chapter 19 to Chapter 31</b>.</p> <p>Designated sites and their features are assessed in <b>MCZA (document reference 7.11)</b> and the <b>Report to Inform Appropriate Assessment (document reference 5.3)</b>.</p>

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Stakeholder	Document / Meeting Date	Comment	How and Where Addressed in the PEIR
Natural England	Scoping Opinion (02/08/24)	<p>Natural England notes that the proposed ECC includes designated sites. Of particular concern are potential impacts to Dogger Bank SAC, Holderness Offshore MCZ and Holderness Inshore MCZ. Dogger Bank SAC and Holderness Offshore MCZ are already in unfavourable condition from ongoing anthropogenic activities. In addition, Natural England's position provided for Hornsea Project Three, Norfolk Vanguard and Norfolk Boreas in relation to Adverse Effects on Integrity from the placement of cable protection remains unchanged and therefore cable protection within these sites should be avoided and where that is not possible, every effort should be made to mitigate the impacts. In order to achieve this, we advise that a cable burial risk assessment is undertaken as part of the application process informed by comprehensive geotechnical and geophysical surveys. If cable protection is required, options that have the greatest success of removal with least impact to interest features should be taken forward. A site integrity plan could then be used to determine the risk to the conservation objectives for the site and determine the requirements for any compensation measures</p> <p>The high-level characterisation of the baseline environment is satisfactory at this stage but we would expect to see far more detail as the projects move forward and site / project specific data becomes available. The broadscale habitats and larger habitats of conservation interest appear to be broadly correct. There will be more local data from other projects that could be used to give context to any modelled data presented along with data that will be gathered for this project.</p>	<p>Designated sites and their features are assessed in <b>MCZA (document reference 7.11)</b> and the <b>Report to Inform Appropriate Assessment (document reference 5.3)</b>.</p> <p>A cable burial risk assessment will be conducted and provided as part of the ES during the next stage of the EIA.</p> <p>The baseline environment has been updated with ground-truthed benthic survey data, see <b>Section 10.6 of Volume 1, Chapter 10 Benthic and Intertidal Ecology</b>. The benthic survey methodology and results are shown in <b>Appendix 10.3 Benthic Ecology Characterisation Report</b>. These results will also be coupled with the ECC geophysical survey results to provide a more in-depth ground truthing for the ES stage.</p> <p>The updated surveys noted 12 biotopes within the Offshore Development Area up to EUNIS Biotope Complex Level 5, with a few locations surveyed not able to identify to this level and therefore a further 5 equivalent JNCC classifications were used. Potentially sensitive habitats are also identified and shown in <b>Section 10.6.1.3 of Volume 1, Chapter 10 Benthic and Intertidal Ecology</b>.</p>



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		<p>Of note, in paragraph 331 it is mentioned that the predicted EUNIS habitats in the Study Area is predominantly A5.25 circalittoral fine sand. As shown in Figure 7-9, A5.26 circalittoral muddy sand and A5.24 infralittoral muddy sand may also be present.</p> <p>Para 333 summarises predicted sediments as described by EUNIS and listed as A5.13, A5.14, A5.44, A5.25. To note - A5.26 (circalittoral muddy sand) and A5.24 (infralittoral muddy sand) should also be considered here.</p> <p>There may well be other habitats such as cobble reef, peat and clay exposures and seapens and burrowing megafauna communities that are known in this area but not mapped at this broad scale.</p>	
Natural England	Scoping Opinion (02/08/24)	<p>Para 367 states that “A section of the Offshore Scoping Area overlaps with Flamborough Head, which is an Annex 1 sandbank, due to the 10km buffer”. We recommend this is corrected to highlight that Flamborough Head comprises vegetated sea cliffs, sea caves and reefs, and is flanked to the south by Smithic Sands, which is the Annex 1 sandbank habitat.</p>	<p>Noted, the onshore and intertidal aspects of Flamborough Head do not overlap the Project, whereas the Annex 1 sandbank habitat does. The effects on the physical processes of the sandbank habitat are assessed further in <b>Section 8.7</b> in <b>Volume 1, Chapter 8 Marine Physical Processes</b>.</p>

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			Smithic Bank (as delimited by JNCC, see <b>Figure 8-18 in Volume 1, Chapter 8 Marine Physical Processes</b> ) lies just north of the Offshore ECC. The site-specific surveys and available data sources have identified and ground truthed the potential biotopes present in the Offshore ECC that is near Smithic Bank and these have been assessed as the biotopes / habitats that are present, see <b>Section 10.6.1 in Volume 1, Chapter 10 Benthic and Intertidal Ecology</b> .
Natural England	Scoping Opinion (02/08/24)	<p>Designations: 2023 comment:</p> <p>All relevant SACs and MCZs appear to have been identified. For Holderness Offshore MCZ, North Sea glacial tunnel valleys is missing from the designating features list in Table 7-9. For Holderness Inshore MCZ, Table 7-9 is missing Spurn Head (Subtidal) as a designated feature. Although Dogger Bank SAC is considered an Annex I Sandbank, it should be highlighted that it is a relict sandbank, which increases its sensitivity to activities and pressures as there is no way for it to return into a stable condition once depleted.</p> <p>2024 updated comments:</p> <p>We acknowledge and welcome that the feature lists for Holderness Offshore and Inshore MCZs have been updated to include North Sea glacial tunnels and Spurn Head respectively. We reiterate our above advice that descriptions of Dogger Bank SAC should highlight that it is a relict sandbank.</p>	Noted, these features are discussed in <b>MCZA (document reference 7.11)</b> .
Natural England	Scoping Opinion (02/08/24)	Potential impacts during operation: 2023 Comment:	Noted.

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		<p>We consider assessment of maintenance activities is underestimated. This is important as whilst impacts may be less than during construction, they are additional to those during construction and can inhibit or slow recovery of impacted habitat. Full consideration should therefore be given to impacts from maintenance activities for these to be permitted. Temperature changes due to heating from cables has not been discussed, therefore it is not clear whether this is scoped in or out.</p> <p>2024 Updated Comments:</p> <p>We acknowledge and welcome that temporary habitat loss and disturbance, increased suspended sediments and sediment re-deposition and interactions of EMF, have now been scoped in. We also note the consideration given to sediment heating effects and agree that this can be scoped out.</p>	
Natural England	Scoping Opinion (02/08/24)	We advise that temporary physical disturbance to the seabed due to operation and maintenance activities should be scoped into the assessment	Noted, it is scoped in and assessed in <b>Section 10.7.2.1 of Volume 1, Chapter 10 Benthic and Intertidal Ecology.</b>
Natural England	Scoping Opinion (02/08/24)	<p>Scour protection is not listed here. We advise that long term habitat loss due to the presence of scour protection should also be considered.</p> <p>There is currently a lack of understanding of effects of EMF on benthic habitats. In particular, it is highlighted that Teesside A &amp; B concluded a low magnitude of impact from EMF. This highlights the importance of cumulative effects assessment in particular due to the scale of activity in the Dogger Bank location.</p>	Scour protection is considered and assessed at PEIR, with the amount being shown in <b>Table 10-7 of Volume 1, Chapter 10 Benthic and Intertidal Ecology.</b> Full assessment for habitat loss / alteration can be found in <b>Section 10.7.2.2 of Volume 1, Chapter 10 Benthic and Intertidal Ecology.</b>

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Stakeholder	Document / Meeting Date	Comment	How and Where Addressed in the PEIR
		We advise that EMF impacts on benthic and intertidal receptors should remain scoped in. It is acknowledged in paragraph 366 that the target burial depth of cables (0.5m) is shallower than required to not have to assess the operation impact of EMF cables as given in the National Policy Statement (EN-3) (1.5m depth required)	Effects on EMF are assessed in <b>Section 10.7.2.6 of Volume 1, Chapter 10 Benthic and Intertidal Ecology</b> where the outcome is a significance of effect of <b>negligible</b> , which is <b>not significant</b> in EIA terms.  Due to the negligible significance of EMF, it is not assessed further in the CEA.  Note that the target burial depth of cables will be 3.5m, however for the purpose of assessment a worst case minimum burial depth of 0.2m has been assessed.
Natural England	Scoping Opinion (02/08/24)	Decommissioning should also continue to consider permanent habitat loss from any infrastructure that remains at the time of decommissioning – this is thus the extension of habitat loss from the operational phase.	Habitat loss / alteration is included as an impact during decommissioning and assessed in <b>Section 10.7.3 of Volume 1, Chapter 10 Benthic and Intertidal Ecology</b> .
Natural England	Scoping Opinion (02/08/24)	The desk-based data sources for benthic and intertidal ecology are broadly suitable. To note - updated formal conservation advice for Dogger Bank SAC was produced in December 2022. This advice should be used to inform the PEIR and ES.	Updated advice for the Dogger Bank SAC has been included and followed for the PEIR assessment.
Natural England	Scoping Opinion (02/08/24)	2023 Comment:  Table 7-12 outlines the following proposed surveys to be undertaken to inform the EIA in 2023:  Geophysical survey e.g. side-scan sonar, multi-beam echosounder and sub-bottom profiler – array area and offshore export cable corridor;  Grab sampling, epibenthic trawls, drop-down video – array areas and offshore export cable corridor; and	Noted.

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		<p>Intertidal walkover surveys – (landfall location(s))</p> <p>We believe that the surveys proposed above are likely to be sufficient in identifying features of nature conservation interest (including Annex I habitats, List of Threatened and / or Declining Species and Habitats and Habitats of Principal Importance), provided surveys are designed and undertaken as a result of the initial geophysical survey data assessment. However, at this high level it is difficult to comment on specific data collection techniques suitable for this project. Please ensure that within the ES, the standards to which the data collection methodologies will be subjected to are included. More information on what is expected can be found in the best practise for EIA surveys.</p> <p>Survey techniques should be appropriate to the habitats being assessed. i.e. If epibenthic trawls are to be conducted, they should only be conducted in environments where the sensitivity to surface abrasion pressure is low. Areas which are to be sampled in this way should be ground truthed first to ensure no sensitive habitats are likely to be damaged. We refer the Undertaker to Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards document (Parker et al, 2022) which we would expect them to take account of for further sources of information.</p> <p>Given the extent of the coastline currently being considered in the areas of search for a landfall location, a combination of phase I and phase II survey techniques to provide suitable data biotope classification would enable robust conclusions to be drawn within the EIA on biotope types.</p> <p>2024 Updated Comments:</p>	

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		Natural England have since provided discretionary advice directly with the Undertaker and are satisfied with the benthic surveys methodologies proposed, to be undertaken Summer 2024.	
Natural England	Scoping Opinion (02/08/24)	We welcome that site-specific benthic surveys will be undertaken to update existing data.	Noted.
Natural England	Scoping Opinion (02/08/24)	We advise that the array and offshore ECC should be scoped in when assessing the impact of increased suspended sediment concentrations during construction, including site preparation works.	Both areas have been scoped in and assessed for increased suspended sediment concentrations, see <b>Section 10.7.1.2 of Volume 1, Chapter 10 Benthic and Intertidal Ecology.</b>
Natural England	Scoping Opinion (02/08/24)	<p>We note:</p> <p>Impacts from deposition of sediment and smothering are not covered for all construction activities. This is important for any material deposited from seabed preparation works, foundation and cable installation and sandwave clearance.</p> <p>It is not clear in the benthic section how any changes to hydrodynamics and impacts of these on benthic habitats will be taken into account e.g. changes in water flow, wave and tide climate.</p> <p>Impacts from boulder clearance, both removal and deposition must be taken into account.</p> <p>Impacts from UXO clearance must be taken into account.</p>	<p>Noted, impacts from the following have been taken into account and utilised physical processes modelling that was undertaken for <b>Volume 1, Chapter 8 Marine Physical Processes.</b></p> <p>Full assessments can be found in <b>Section 10.7 of Volume 1, Chapter 10 Benthic and Intertidal Ecology.</b></p>

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Stakeholder	Document / Meeting Date	Comment	How and Where Addressed in the PEIR
Natural England	Scoping Opinion (02/08/24)	<p>The ES should assess the impact of all phases of the proposal on protected species (including, for example, pinnipeds (seals), cetaceans (including dolphins, porpoises whales), fish (including seahorses, sharks and skates), marine turtles, birds, marine invertebrates, bats, etc.)... Records of protected species should be sought from appropriate local biological record centres, nature conservation organisations, NBN Atlas, groups and individuals; and consideration should be given to the wider context of the site for example in terms of habitat linkages and protected species populations in the wider area, to assist in the impact assessment.</p> <p>The conservation of species protected by law is explained in Part IV and Annex A of Government Circular 06/2005 Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System. The area likely to be affected by the proposal should be thoroughly surveyed by competent ecologists at appropriate times of year for relevant species and the survey results, impact assessments and appropriate accompanying mitigation strategies included as part of the ES.</p> <p>In order to provide this information there may be a requirement for a survey at a particular time of year. Surveys should always be carried out in optimal survey time periods and to current guidance by suitably qualified and where necessary, licensed, consultants.</p>	<p>Noted, information on protected species associated with benthic and intertidal ecology are shown in <b>Section 10.6.1 of Volume 1, Chapter 10 Benthic and Intertidal Ecology</b>, taking into account best practice and guidance.</p> <p>All survey information related to benthic and intertidal ecology can be found in <b>Appendix 10.2 Intertidal Ecology Survey Report</b> and <b>Appendix 10.3 Benthic Ecology Baseline Characterisation Report</b>.</p>
Natural England	Scoping Opinion (02/08/24)	<p>Natural England advises the provision of a plan is not embedded mitigation and the commitments within the plans will be key. As we have not seen the plans, we are unable to advise if impacts have been adequately addressed.</p>	<p>Noted, accidental spills and leakages of oils, fuels and other polluting substances has been noted in the <b>outline PEMP (document reference 8.6)</b> and measures to limit have been put forward within.</p>

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Stakeholder	Document / Meeting Date	Comment	How and Where Addressed in the PEIR
		<p>Natural England advises that outline plans including any mitigation measures should be provided at the time of Application.</p> <p>We also advise that accidental spillages and leakages of oils, fuel and other polluting substances which could potentially enter the water environment be scoped in for further assessment with regards to designated sites and potential impacts to their interest features.</p>	<p>The plans relevant to benthic and intertidal ecology being submitted with the PEIR application are:</p> <p><b>Outline PEMP (document reference 8.6).</b></p> <p>The commitments made in these documents have been added to <b>Table 10-4 of Volume 1, Chapter 10 Benthic and Intertidal Ecology.</b></p>
Natural England	Scoping Opinion (02/08/24)	We advise that increased suspended sediment concentrations due to operation and maintenance activities should be scoped into the assessment.	Increased suspended sediment concentrations has been included for the operational phase and is assessed in <b>Section 10.7.2.3 of Volume 1, Chapter 10 Benthic and Intertidal Ecology.</b>
Natural England	ETG1 Meeting 1 (13/09/23) Agreement Log	Natural England confirms the project will overlap Holderness Inshore and Holderness Offshore MCZ and Dogger Bank SAC. The existing environment habitat codes listed do not include moderate or high energy circalittoral rock which is a feature of Holderness Inshore MCZ, and may be present in the nearshore area. Natural England notes that there are evidence gaps within the Holderness MCZs in terms of exact location of these habitats and further data collection to allow micro-sighting would be welcome.	We note the error of missing the feature within the Holderness MCZ. The baseline surveys (geophysical and benthic) have now been undertaken across these designations and data will be reviewed to identify any conservation features within the Project boundary and presented in full within the benthic characterisation report. The ECC geophysical survey results will be added to the benthic survey results for ground truthing and will be available for the ES.



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Stakeholder	Document / Meeting Date	Comment	How and Where Addressed in the PEIR
Natural England	ETG1 Meeting 1 (13/09/23) Agreement Log	Light attenuation is highly correlated with levels of suspended matter, and the availability of underwater irradiance will influence phytoplankton biomass. Therefore, the potential impact of sediment plumes on light attenuation across the array should be considered (although we acknowledge that this may be addressed elsewhere in other receptor/topic chapters).	<p>The marine physical processes chapter will assess changes in suspended sediment. It is expected that increases in suspended sediment concentrations are expected to be localised and short-term. Fine suspended sediment may be transported further than coarser sediments, however, this is likely to be widely and rapidly dispersed and within the range of natural variability within the region.</p> <p>Wang et al., (2023) reviewed a number of OWF projects worldwide regarding trophic level species showed phytoplankton biomass to increase due to increased suspended matter.</p> <p>Therefore, it is proposed to scope out this impact as it would have a low sensitivity and the magnitude of the areas effected would also be minimal.</p>

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MMO	ETG1 Meeting 1 (13/09/23) Agreement Log	<p>The MMO notes that sediment heating from cables is scoped out. While the data obtained from the test sites in Taormina et al. 2020 did not indicate any increase in temperature on the cable surface or the surrounding water, the authors acknowledge that there remains a knowledge gap concerning the heating of sediment around a buried cable, and MMO would therefore recommend that additional information is sought is provided (e.g., depth of burial and maximum current loads) so that it can be assured that the cables proposed for use in the project will not negatively affect the benthic assemblage along the cable route before scoping this impact out entirely. Should the theoretical capacity for heat transfer from the cables to the surrounding benthic assemblage be negligible, the MMO agrees that this impact can be scoped out of further assessment.</p>	<p>Recent evidence indicates that the surface temperature difference of operational power cables in comparison to inert sections of the same cable was negligible at a sensitivity level of 0.06°C (Taormina et al., 2018; 2020). This rationale was presented during the Dogger Bank South Scoping and EPP. All stakeholders were content for this issue to be scoped out using that rationale. In addition, modelling of heating for HVDC cables with similar high-voltage specifications as high capacity OWF export cables (525kV) (Brakelmann and Stammen, 2017) suggests that even for a worst-case scenario of bundled high voltage cables, any increases in temperature will be limited to a very narrow band above the cables with negligible lateral heat transfer. The footprint of any effect will therefore be extremely narrow; less than a 1m strip above the cable (although it is not possible to define the area precisely), noting that cables at DBD have a burial depth of 0.2 - 9m. Indeed, conservative modelling suggests that a cable-induced temperature increase at 20cm below the surface will be below 2°C at cable burial depths greater 0.35m – 0.55m. At cable burial depths over 1.5m, any temperature change at 20cm below the surface is likely to be negligible (Brakelmann and Stammen, 2017). It is important to note that demersal spawned eggs will be surface laid, and therefore located even further away from the buried cable. Surface-laid eggs will be subject to constant heat transfer from water flow, similarly to the surface laid cables where no cable surface heating was observed</p>
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Stakeholder	Document / Meeting Date	Comment	How and Where Addressed in the PEIR
			(Taormina et al., 2018; 2020). The Offshore Development Area does not lie at a fringe of the North Sea, meaning that fish, shellfish and benthic biological assemblages are relatively typical of a North Sea environment. In other words, the Project does not coincide with the northern or southern limits of the distributional ranges of species under consideration. For this reason, it is very unlikely that temperature changes will be ecologically significant at a local scale, i.e. the footprint of a heating effect. Since this footprint is so small the potential for population level effects is considered to be negligible. The Undertaker considers that the above evidence is sufficient to demonstrate that ecological risks of sediment heating from cables is negligible and can be scoped out. The Undertaker will communicate the specifications of the subsea cables and refinements to proposed burial depths through the EPP to justify the scoping out of this impact.
Environment Agency	ETG1 Meeting 1 (13/09/23) Agreement Log	<p>Does the ETG agree with the approach to characterising the baseline for the Benthic Ecology chapter?</p> <p>Yes, however the results of the intertidal surveys (proposed for 2023) should provide further detail and should be included as part of the planning application.</p>	The intertidal survey results for the updated landfall are presented in <b>Appendix 10.2 Intertidal Ecology Survey Report</b> .

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Stakeholder	Document / Meeting Date	Comment	How and Where Addressed in the PEIR
Natural England	ETG1 Meeting 3 (30/10/24) DAS Note	For One Benthic to be used as a tool by the project, it's limitations will need to be acknowledged. One Benthic's baseline data is from a variety of sources of different ages, some 20 years old. The data obtained from aggregates operational monitoring is often homogenous and without characterisation, due to physical data not being used to target samples, therefore the samples may not always be representative of the communities present.	Noted. Assumptions and limitations for the assessment are discussed in <b>Section 10.5.6 of Volume 1, Chapter 10 Benthic and Intertidal Ecology</b> .
MMO	ETG1 Meeting 3 (30/10/24) Agreement Log	<p>Does the ETG agree with the suggestion to use a 5-year window for survey results within the array area?</p> <p>MMO confirmed that if there was no Sabellaria present then a 5-year data vintage is acceptable to them.</p> <p>There are two records for Sabellaria just offshore from Skipsea (NBN Atlas). We advise that you check carefully that this species is not present in samples from the cable corridor.</p>	<p>Occurrences of <i>S. spinulosa</i> were observed along the transect at station ST025. The maximum reef morphology assessed was 'not a reef'.</p> <p><i>S. spinulosa</i> individuals were also present in grab samples at stations ST010, ST013, ST015, ST016, ST017, ST018, ST019, ST020, ST021, ST022, ST024 and ST107. None of these stations had signs of a biogenic reef and all of were within the Offshore ECC.</p> <p>Further information can be found in <b>Section 4.2.6.3</b> and <b>Section 5.5.1</b> in <b>Appendix 10.3 Benthic Ecology Baseline Characterisation Report</b>.</p>

## References

Dogger Bank D (2023). EIA Scoping Report. Available at: <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010144/EN010144-000011-EN010144%20-%20Scoping%20Report.pdf> [Accessed September 2024].

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## List of Acronyms

Acronym	Definition
DCO	Development Consent Order
DBD	Dogger Bank D
dDCO	Draft Development Consent Order
EIA	Environmental Impact Assessment
ECC	Export Cable Corridor
EMF	Electro-magnetic Field
ES	Environmental Statement
ETG	Expert Topic Group
OCS	Onshore Converter Station
PEIR	Preliminary Environmental Information Report
PEMP	Project Environmental Monitoring Plan
MARPOL	International Convention for the Prevention of Pollution from Ships
MCZ	Marine Conservation Zone
MCZA	Marine Conservation Zone Assessment
MMO	Marine Management Organisation
SAC	Special Area of Conservation
UXO	Unexploded Ordnance