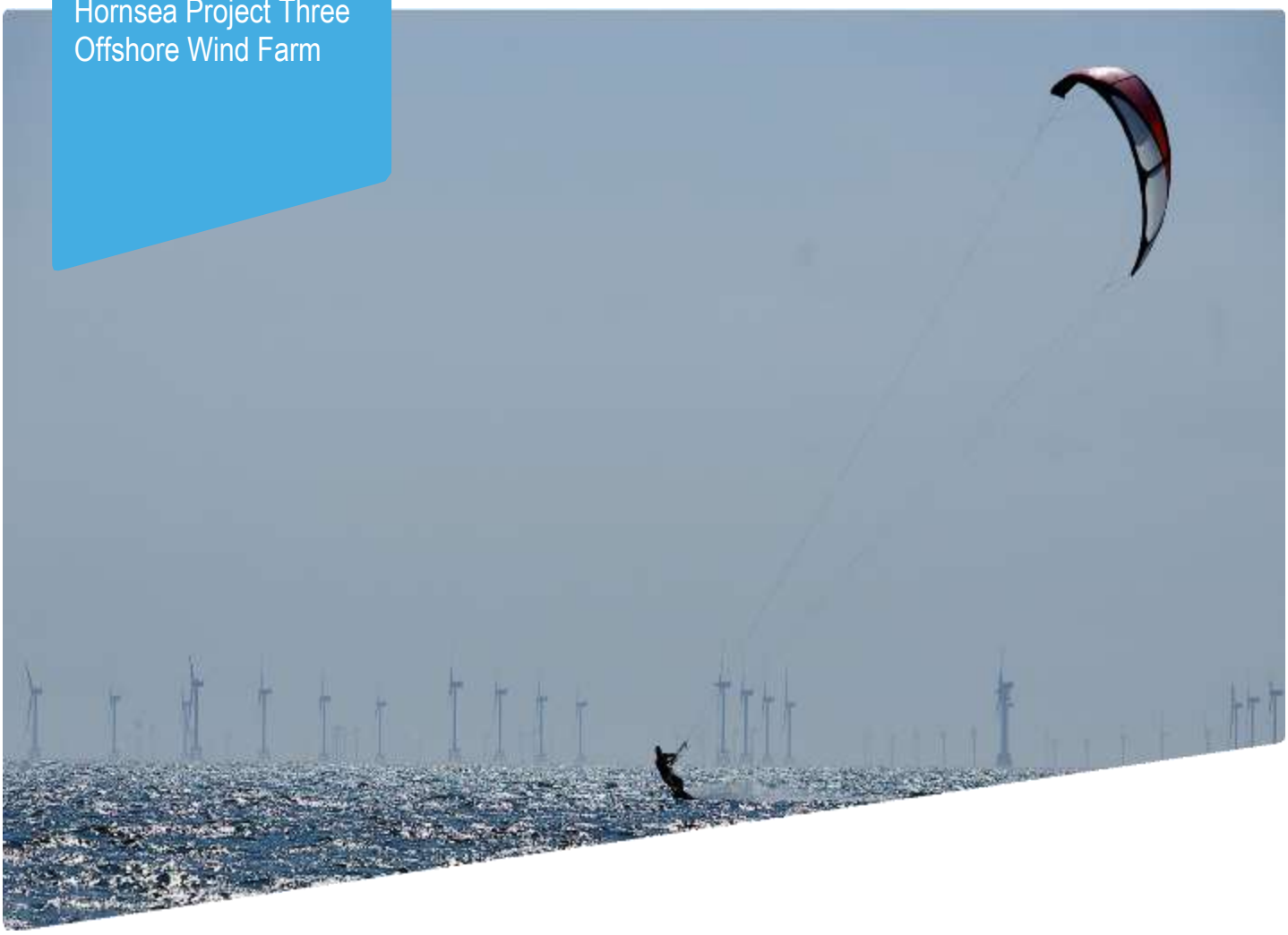
Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three

Offshore Wind Farm

Applicant's comments on Written Representations and Responses submitted by Interested Parties at Deadline 1

Date: 21st November 2018

Hornsea 3
Offshore Wind Farm

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Front cover picture: Kite surfer near a UK offshore wind farm © Ørsted Hornsea Project Three (UK) Ltd., 2018.

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1. Introduction

1.1 Following submission of Written Representations by Interested Parties at Deadline 1, the Applicant has taken the opportunity to review each of the Written Representations received by the Planning Inspectorate. Details of the Applicant's responses to each of those representations are set out within this document in subsequent sections below.

2. Applicant's Comments on Written Representations

Anglian Water Services Limited (REP1-001)

Summary

2.1 This response extends to the written representations submitted by Affected Persons as identified in the Book of Reference (APP-033).

Response to Anglian Water Services Limited

Interested Party's Written Representation	Applicant's Response
1.1 Anglian Water Services Limited ("Anglian Water") is appointed as the water and sewerage undertaker for the Anglian region, by virtue of an appointment made under the Water Industry Act ("WIA") 1991. Anglian Water is a wholly owned subsidiary of AWG plc. The principal duties of a water and sewerage undertaker are set out in the WIA.	Noted
1.2 Anglian Water is considered a statutory consultee for the proposed Gas fired peaking plant and connection infrastructure under section 42 of the Planning Act (2008) and Regulation 3 of the Infrastructure Planning (Applications: Prescribed Forms and Procedures) Regulations 2009.	
1.3 Anglian Water is the appointed water and sewerage undertaker for the development.	
1.4 Anglian Water has engaged as an Interested Party in the Examination in order to ensure adequate provisions are included within any final Development Consent Order to protect Anglian Water's existing and future assets and Anglian Water's ability to perform its statutory duties.	
1.5 Anglian Water is in principle supportive of the development.	
2.1 There are a number of water mains and foul sewers in Anglian Water's ownership located within the boundary of the proposed cable route. These assets are critical to enable us to carry out Anglian Water's duty as water and sewerage undertaker.	
2.2 In relation to the water and water recycling assets within the boundary of the Development Control Order, having laid the asset under statutory notice, Anglian Water would require the standard protected easement widths for these assets and for any requests for alteration or removal to be conducted in accordance with the Water Industry Act 1991 and the Protective Provisions sought by Anglian Water (outlined in section 3). Set out below is the standard easement width requirements;	

Interested Party's Written Representation	Applicant's Response
2.3 Standard protected strips are the strip of land falling the following distances to either side of the medial line of any relevant pipe; • 2.25 metres where the diameter of the pipe is less than 150 millimetres, • 3 metres where the diameter of the Pipe is between 150 and 450 millimetres, • 4.5 metres where the diameter of the Pipe is between 450 and 750 millimetres, • 6 metres where the diameter of the Pipe exceeds 750 millimetres.	
2.4 If it is not possible to avoid any of Anglian Water's water supply or water recycling assets, then the asset may need to be diverted in accordance with Section 185 of the Water Industry Act 1991. Anglian Water is, pursuant to Section 185 under a duty to divert water mains or sewers if requested to do so unless it is unreasonable to do so. A formal application will need to be made to Anglian Water for a diversion to be considered. Diversionary works will be at the expense of the applicant.	
2.5 There are existing boreholes for a public water source in the vicinity of the proposed cable route at Marlingford. It is essential to protect the aquifer and Anglian Water's existing assets from contamination from any activities that might cause pollution. We would expect mitigation measures to be put in place to prevent any pollution of the Chalk aquifer from surface activities	
2.6 Anglian Water has reviewed the application documents relating to groundwater sources and proposed mitigation measures (documents APP037, APP-123 and APP-179) submitted as part of the Hornsea 3 application. We consider that due regard has been given to groundwater and source protection as part of the Hornsea 3 application.	
2.7 A potable water supply for the proposed onshore substation and Onshore HVAC Booster Station and welfare facilities is expected to be required as part of the construction phase of the Hornsea 3 project.	The Applicant will require a new water supply during the construction and operation of the onshore HVAC booster station and onshore HVDC converter/HVAC substation. The Applicant will apply for the new water supplies in accordance with Sections 45 and 55 Water Industry Act 1991. During the construction phase, a portable water supply will also be used to supplement periods of high water usage when necessary.
2.8 Anglian Water is not aware of any wastewater requirements made upon them for the development.	The Applicant confirms that this is correct.
2.9 Should a water supply or wastewater service be required and once agreement has been reached, there are a number of applications required to deliver the necessary infrastructure. These are outlined below: Provision of infrastructure: Water Supply — Sections 45 and 55 Water Industry Act 1991 Onsite Foul Water — Sections 104 Water Industry Act 1991 Offsite Foul Water — Section 104 Water Industry Act 1991	Noted

Interested Party's Written Representation	Applicant's Response
3.1 Anglian Water has had constructive dialogue with the applicant regarding the wording of protective provisions specifically for the benefit of Anglian Water to be included in the Draft Development Consent Order (DCO). The DCO as currently drafted incudes protective provisions specifically for the benefit of Anglian Water (Schedule 9, Part 6) as previously requested.	Noted
3.2 The applicant is proposing to make a change to paragraph 3 of the protective provisions for consistency with the wording of the Millbrook Power Draft DCO. Anglian Water is supportive of the wording which appears in the Millbrook Power Draft DCO.	The Applicant confirms that this change was included in the draft DCO submitted for Deadline 1 (REP1-133).
3.3 We understand that the applicant is to include this change in the next version of the Draft DCO to be submitted to examining authority. Therefore, we are supportive of the wording of the Draft DCO subject to the inclusion of proposed change to the wording of paragraph 3.	The Applicant confirms that this change was included in the draft DCO submitted for Deadline 1 (REP1-133).

Mrs Sherrill Bullimore (REP1-003)

Summary

2.2 This response extends to the written representations submitted by Affected Persons as identified in the Book of Reference (APP-033).

Response to Mrs Sherrill Bullimore

Interested Party's Written Representation	Applicant's Response
Dear Secretary to the Planning expectorate This is a Copy of a letter sent to Prof John Burland, Institute of Civil Engineers as on asking ORSTED to reroute – they sent us a ridiculous reply. Please could this letter be considered with my PINS form. Yours sincerely Sherrill Bullimore (See letter annex below)	The Applicant would refer to the Applicant's Comments on Relevant Representation RR-002 submitted at Deadline 1 (REP1-131).
Dear Sir, Prof John Burland, Firstly thank you for your life's work and the charter "The art of directing the Great Sources of power in nature – for the use and convenience of man. My son is a trainee Civil Engineer at Nottingham Trent University is now in his 3rd year – he started with GCSE's and went to college and then on to university – he always knew from the age of four – when he used to cellotape his lego to the floor to stop me from demolishing his building bricks that he wanted to be a civil engineer and has followed your great projects with much interest – but this letter is not about my son. I have a tiny plot of Amenity Utility land just 65 meters square – on it I have a wildlife garden a summerhouse a rescue pony, bee hives and an apple orchard. My small holding is known as Mole Orchard, Kelling Paddocks, Holgate Hill, Weybourne,	

Interested Party's Written Representation	Applicant's Response
Norfolk NR25 7ER and is just off an SSSI known as Kelling Heath. We are one of 8 paddocks that ORSTED Wind Farms (Hornsea Project 3) have marked to put across 6 high powered cables – my neighbour Mr Joe Cook is a leg amputee (his respite land and caravan just 125 meters x 25 meters will also be impacted with six cables. ORSTED have detoured off an agricultural filed to cross our 8 paddocks and across a flat railway line – because it is the easiest and cheapest route - We have sent them two other routes – crossing a field and the same railway line further up the line – but we have had an e-mail back from a Mr Richard Grist – Land Manager ORSTED, stating that because of a small curve in the line – it would not be possible to drill underneath! I wondered what the Institute of Civil Engineers would make of this comment? I have already written to the planning expectorate and the secretary of state – Please can you help. Yours sincerely, Sherrill Bullimore	

Cawston Parish Council (REP1-004)

Summary

2.3 Cawston Parish Council have submitted one written representation at Deadline 1 (REP1-004). The written representations provide further detail regarding Cawston Parish's concerns regarding traffic impacts through the village of Cawston.

2.4 The Applicant refers to the Applicant's Comments on Relevant Representation RR-124 submitted at Deadline 1 (REP1-131), and notes that engagement is ongoing with Cawston Parish Council to inform the need and nature of traffic management measures to be developed as part of the detailed CTMP post-consent.

Response to Cawston Parish Council

Interested Party's Written Representation	Applicant's Response
50 word Summary We have concerns regarding the traffic impact through the village of Cawston. This relates to the fact that Link 89 through Cawston does not appear to have been fully assessed and therefore the sensitivity the village has not been addressed and appropriately mitigated.	The Applicant would would refer to the Applicant's Comments on Relevant Representation RR-124 submitted at Deadline 1 (REP1-131) which cross refers to RR-065 and provides commentary on the traffic impacts through Cawston.
Full response The Traffic and Transport chapter of the Environmental Statement (Volume 3 – Chapter 7 and associated figures within Volume 6 – Annex 7.8) assesses the potential construction and	The Applicant would would refer to the Applicant's Comments on Relevant Representation RR-124 submitted at Deadline 1 (REP1-131) which cross refers to RR-065 and provides commentary on the traffic impacts through Cawston.

Interested Party's Written Representation	Applicant's Response
staff traffic passing along all impacted routes associated with the Orsted works corridor. Therefore the section of the B1145 between the eastern edge of Cawston and the B1149 roundabout (Link 90) has been assessed with regards the impact of the works. The length through Cawston (Link 89) has not nor the length between Cawston and Salle (Link 88). Based on an 11 hour working day the total number of HGV movements expected through Cawston is 379 with 243 construction staff movements. Therefore the total number of daily combined movements (totaling eastwards and westwards movements) is 622. For HGVs this is estimated as a 298% increase in daily movements over the existing baseline scenario. Link 90 is not deemed 'sensitive' in line with IEMA guidance. Therefore on this basis the report concludes that no further assessment of Link 90 is required. We note here however that Link 89 through Cawston has not been assessed and could perhaps be classed as 'sensitive' in line with IEMA guidance. It is also worth noting here that the more recent Vattenfall DCO application has classified the village of Cawston as 'Sensitive', which quite clearly suggests this application has ignored our village and is not offering to deal with the potential impacts of the works traffic upfront. On the basis of the above assessment we request that the B1145 through Cawston is assessed correctly and appropriate mitigation for the significant increase in HGV traffic flows are put in place as at present nothing is proposed which we believe to be unacceptable given the magnitude of change over the baseline scenario.	The traffic flow diagrams presented in Volume 6, Annex 7.1: Transport Assessment (APP159/REP1-162) show traffic figures at Link 90. These figures, however, represent the traffic going along Links 88, 89 and 90 and thus these traffic flows have informed the assessment undertaken. The Applicant notes that the figures based on an 11 hour day are correct and shown in Table 1.6 of Volume 6, Annex 7.1: Transport Assessment (APP159/REP1-162). However, the Applicant would note that this represents a maximum design scenario, and work is ongoing to develop HGV fluctuation levels to define the peak and average flows over the construction period which will be submitted at Deadline 3. Volume 6, Annex 7.2: Description of Network Links and Sensitivity (APP-160) presents the description of the network links within the Hornsea Three traffic and transport study and their sensitivity in terms of proximity to sensitive receptors. In this report the B1145 in Cawston (Link 89) is classified as of medium sensitivity due to narrow footways, frontages and town centre. This has then fed into the assessment presented within the Environmental Statement. The Applicant continues to engage with relevant interested parties, including Cawston Parish Council, in respect to the need and nature of construction traffic management measures within Cawston.
Cawston also has a number of properties (including listed buildings) situated very close to (and immediately adjacent in some instances) the B1145 along the High Street. Therefore given our duty of care to our parishioners we have concerns relating to the structural integrity of these buildings (including their basements) as well as the underlying infrastructure beneath the highway. With this in mind parishioners have raised concerns with regards structural damage to their properties given the amount of vibration existing HGV traffic already creates. We believe the impact of the 298% increase in HGV traffic has not been adequately addressed with reference these matters as so request that further consideration is made by the applicant and a suitable solution offered. Orsted have a duty of care to carry out an appropriate condition survey on these properties prior to and following the works to understand whether any lasting impacts are had. These surveys should ensure that any damage occurring as a result of the increased HGV traffic will be rectified without prejudice. As a parish council we appreciate there is a need to access the cable corridor and how critical the crossing point at Salle is. However we believe there are some significant issues associated with thevillage of Cawston that need to be addressed up front with reference the large increase in HGV traffic.	The Applicant would would refer to the Applicant's Comments on Relevant Representation RR-124 submitted at Deadline 1 (REP1-131) which cross refers to RR-065 and provides commentary on the traffic impacts through Cawston.
We would therefore welcome the opportunity to discuss these issues further with the applicant in an upfront manner to agree a	The Applicant is engaging with a working group set up with Cawston Parish Council in order to better understand existing

Interested Party's Written Representation	Applicant's Response
suitable way forwards for our parish.	baseline vibration levels at residential properties immediately adjacent to the main road through Cawston, to inform the need and nature of traffic management measures to be developed as part of the detailed CTMP post-consent.

Easton Estate and Honingham Aktieselskab (REP1-011)

Summary

2.5 This response extends to the written representations submitted by Affected Persons as identified in the Book of Reference (APP-033).

Response to Easton Estate and Honingham Aktieselskab

Interested Party's Written Representation	Applicant's Response
Introduction 1.1 This statement is our response, submitted on behalf of our clients Honingham Aktieselskab, to the underground cable route proposed as part of the Hornsea Project Three Offshore Wind Farm. Honingham Aktieselskab owns a property known as the Easton Estate (the Estate) where it operates a rural business that has successfully combined conservation, sporting and agricultural interests on their land holdings just to the West of Norwich. 1.2 It is our belief that the proposed installation works for the underground cable submitted will cause significant disruption to the farming enterprise, cause long term damage to the ecology of the Estate and disrupt the principle sporting enterprise.	The Applicant has responded to the individual points of this representation below.
Disruption to Ecology 2.1 The proposed cable route will run for approximately 1600m across the Estate and the area potentially used for laying cables extends to 23.72 acres with a working area of approximately 31.62 acres during construction. 2.2 The potential impact on the Natural Capital of the Estate is significant as even with the adoption of Horizontal Direct Drilling (HDD) a significant amount of the land surface will be disturbed. 2.3 The cable route passes through areas of mature native woodland, high quality irrigated arable, sensitive grassland and water meadows and will see significant changes in terrain over its course. 2.4 The potential for medium term habitat loss, soil displacement and degradation of biodiversity is significant.	Impacts on ecological receptors are assessed in Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement [APP-075]. The Applicant has sought to minimise impacts on ecological receptors through design, including avoidance of designated sites and the use of trenchless technologies (i.e. HDD) to minimise hedgerow and tree removal, as well as impacts to sensitive habitats adjacent to watercourses. Through route refinement or the use of HDD, the Applicant has also avoided all significant areas of woodland. An assessment of the potential impacts on the remaining areas of small, scattered woodland, or woodland edge, which would be removed during the construction phase, is provided in paragraphs 3.11.1.19 – 3.11.1.22 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement [APP-075]. This assessment concludes that there would be no significant effect on the habitats specifically referenced in this representation with the implementation of mitigation measures. Mitigation measures in respect of ecological receptors are secured through Requirement 17 and Requirement 10 of the draft DCO [APP-027], which requires a final CoCP and EMP to be prepared and approved by the relevant

Interested Party's Written Representation	Applicant's Response
	planning authority (in consultation with the Environment Agency in respect of Requirement 17, and with Natural England in respect of Requirement 10) prior to the commencement of construction. Details of the proposed mitigation measures are set out in the Outline CoCP [REP1-142] and the Outline EMP [REP1-147].
Disruption to Business 2.5 Honingham Aktieselskab operates a significant sporting enterprise on their land holdings at Easton. The principle sporting enterprise is game shooting and the quality of the product provided by the Estate is high. 2.6 The construction works are expected to make the shoot as currently laid our inoperable due to disruption to arrangement of game cover, gun lines, release pens and drive orientation. 2.7 Disruption to the shoot enterprise could result in significant loss of income, which can be compensated for and it is expected that provision for financial recompense will be made in any agreement or DCO. 3.2 Financial compensation cannot compensate for damage to the reputation of the shoot. Offering a sub optimal sporting experience is not an option for a business that is based on providing its customers with a high-quality product. It is better for the business to not operate during the construction period than risk providing a poor product and losing customers. 3.3 Disruption to the operation of the business could be managed and partially mitigated by commitment to set working periods and a commitment to use reasonable endeavours to have the ducting works carried out in a short timeframe. 3.4 Commitment to avoid working during sensitive times of the year, such as 1st August to 1st February would allow the Estate to manage the shoot around the works. 3.5 Commitment to use reasonable endeavours to have the cable ducts installed and the trench backfilled within 1month of breaking ground to create the cable trenches would give the Estate, and any other landowner, comfort to know that on any one area will only see significant disruption for a manageable period. 3.6 Whilst constructive negotiations have taken place with Orsted there is a lack of willingness to refine the build period down to any less than 2 years per phase within the overall 8-year build window. If this matter could be tightened to give landowners greater certainty of how the works will affect them the works would be more manageable for the landowner.	The Applicant is in ongoing discussions with this landowner with an aim to reach a voluntary agreement. The Applicant would refer to the Applicant's Compulsory Acquisition Schedule submitted at Deadline 1 (REP-134) which provides an updated version of Appendices A - D of the Statement of Reasons (APP-032) and includes an update on discussions with Honingham Aktieselskab (and Easton Estate). In the event that it is not possible to enter into a voluntary agreement, compensation will be payable in accordance with the Compensation Code, which includes loss of income. The Applicant notes that a landowner has a duty to mitigate its losses. Further information is set out in paragraph 11.2 of the Statement of Reasons [APP-032]. The Applicant is unable to be specific on the time of year and exact length of time that construction works will be required, especially on an individual land-holding basis, as the details of the construction phasing and construction programme are not known at this stage and will be developed during detailed design. Notwithstanding this, it is estimated that works associated with each phase are expected to progress along the Hornsea Three onshore cable corridor with a typical active construction works duration of three months at any particular location.
Conclusion 3.1 It is our client's belief that the Orsted proposals fail to consider the impact on the Natural Capital and business interests of Honingham Aktieselskab. It will significantly impact on the Estate's ability to deliver a product that it has spent years developing. 3.2 Our client respectfully requests that the points contained in this statement are fully considered within the examination	The Applicant has responded to the individual points of this representation above.

Interested Party's Written Representation	Applicant's Response
process. Our intention is to submit a full written representation in due course and, if required, request that we can make oral representations if necessary.	

Wood Dalling Parish Council (REP1-012)

Summary

2.6 Wood Dalling Parish Council has submitted one written representation at Deadline I (REP1-012). The written representation raises concerns regarding the onshore main construction compound location at the form Oulton Airfield, in particular to associated traffic impacts.

2.7 The Applicant refers to the Applicant's Comments on Relevant Representation RR-015 submitted at Deadline 1 (REP1-131).

Response to Wood Dalling Parish Council

Interested Party's Written Representation	Applicant's Response
Wood Dalling Parish Council has concerns about the base at Oulton, from which we gather trucks, vans, lorries etc will be leaving and returning everyday for the duration (which is years?). It is unclear which routes will they be taking and what will be the resulting impact on our area?	The Applicant would refer to the Applicant's Comments on Relevant Representation RR-015 submitted at Deadline 1 (REP1-131) and Appendix 20 Main Construction Compound Briefing Note to the Applicant's response to Deadline I (REP1-176).

Swardeston Parish Council (REP1-014, REP1-184, REP1-190 and REP1-199)

Summary

2.8 Swardeston Parish Council have submitted four written representations at Deadline 1 (REP1-014, REP1-184, REP1-190 and REP1-199) providing comments of Relevant Representation RR-035, RR-052 and RR-054 as well as a notification of wish to attend an accompanied site inspection. The written representations raise concerns regarding impacts from the onshore HVDC converter/HVAC substation and associated mitigation.

2.9 The Applicant would refer to the Applicants Comments on Relevant Representations RR-052 (REP1-131) as well as the Statement of Common Ground between Norfolk County Council and Hornsea Project Three (REP1-232).

Response to Swardeston Parish Council

Interested Party's Written Representation	Applicant's Response
Notification of wish to attend an Accompanied Site Inspection (REP1-014)	
Swardeston Parish Council wishes to be represented at an Accompanied Site Inspection on the site of the proposed HVDC Converter/HVAC Substation adjacent to the B1113 in Swardeston. We feel this visit is vital to allow the Inspectors to	Noted.

Interested Party's Written Representation	Applicant's Response
appreciate the access and landscaping issues pertaining to this site and the need to avoid the removal of mature trees and hedgerows wherever possible.	
Comments on Relevant Representation: RR-054 (REP1-184)	
We write to express our support for the Relevant Representations made to you by South Norfolk District Council (your reference RR-054). In particular, we support South Norfolk District Council's concerns regarding the need to reduce the height of the HVDC Converter/HVAC Substation regardless of the technology finally used. Structures in this rural setting in excess of 12-15 metres in height are impossible to screen, certainly within the 25 year initial lifetime of this project, regardless of the native species used. We would also wish to add that there are dwellings in the parish of Swardeston that will suffer a greater visual impact than is apparent from any of the photomontages in the submitted application documents. Ørsted has seemingly chosen to ignore this by simply offering to plant new woodland in close proximity to the affected buildings but this will, in itself, have a considerable negative visual impact should it ever be planted.	The Applicant would refer to the Applicants Comments on Relevant Representation RR-052 and Annex 3, (REP1-131), both of which address matters relating to the landscape and visual impacts from the onshore HVDC converter/HVAC substation.
Comments on Relevant Representation: RR-052 (REP1-190)	
We write to comment on the Relevant Representations made to you by Natasha Hall (your reference RR-052) who is a resident of the Parish of Swardeston. As the owner of the property nearest to the proposed construction site, she has expressed a number of concerns, most particularly that she will be unable to sell her property during the period of construction. She also quotes an Orsted representative as stating publicly that the siting of the sub-station will have no effect on property values. We wish to make the following comments: 1 For most people, their homes are an important part of their retirement planning. Any loss of value will have serious financial repercussions. What evidence does Orsted have to support their contention that not a single property value in the Parish of Swardeston will be adversely affected? 2 Factors that affect the value of property are complex and varied. We would contend that the visual impact of the proposed sub-station is one such factor. Given the height of the proposed structure, we believe that 'bunding' the substation and planting along the crest will not of itself significantly reduce its visibility since most native tree varieties are relatively slow growing. Accordingly, we believe that, wherever possible, planting of semi-mature trees should commence as soon as the project is given the 'go-ahead', not only around the boundaries of the site but also in other more distant areas where there is anticipated to be line of sight visibility of the substation. 3 We note the contentions of various parties regarding the pending decision regarding HVAC and HVDC current. We understand that an HVAC sub-station would require a building 15	Compensation for any depreciation in the value of land as a result of physical factors associated with the construction or operation of Hornsea Three is payable in accordance with the statutory compensation code. Further information is set out in paragraph 11.2 of the Statement of Reasons [APP-032]. The Applicant would refer to the Applicants Comments on Relevant Representation RR-052 (REP-131).

Interested Party's Written Representation	Applicant's Response
metres in height whereas an HVDC converter would require a building 25 metres in height. For the residents of Swardeston, and Natasha Hall in particular, this decision is of the utmost importance. To suggest that a 25 metre industrial structure situated a mere 250 metres from a residential property would have no adverse effect on that property's value is patently absurd. 4 Notwithstanding any findings in relation to the above, it is obvious that certain properties will be 'unsaleable' during the construction period. We believe that Orsted should be required to purchase such properties at their 'pre-announcement' value. There is clear precedent for this in relation to the HS2 project.	
Comments on Relevant Representation: RR-035 (REP1-199)	
We write to comment on the Relevant Representations made to you by Norfolk County Council (your reference RR-035) in so far as they are directly relevant to residents of the Parish of Swardeston. We do not agree with Norfolk County Council's view that a twenty five metre high converter station situated close to residential properties in the ancient parish of Swardeston as mentioned in the Doomsday Book is preferable to a booster station, which may be situated in open countryside far from view of any existing residential communities and which may be successfully screened from occasional passers-by by suitable landscaping. Norfolk County Council express their concern for businesses and communities that may be adversely affected by the construction works. We are of the opinion that more concern should be shown for those communities – of which there is only one, namely the Parish of Swardeston – which will be adversely affected not only during the construction works but also during the twenty five or perhaps even fifty year operational phase of the project. We note that Norfolk County Council would welcome a secondary connection to the National Grid somewhere along the cable route to support housing and employment growth – presumably in north Norfolk. We would suggest that if this is indeed a major concern then the only appropriate transmission solution, in order to minimise the extent, scope and height of the necessary supporting infrastructure, is HVAC. Norfolk County Council have expressed concerns regarding safe access to the site of the HVDC Converter/HVAC Substation (para 1.25). We would like the precise location of this access to be chosen based not only on road traffic safety but also with a view to minimising the removal of the mature hedge and trees along the frontage with the B1113.	The Applicant would refer to the Applicants Comments on Relevant Representation RR-035 (REP-131) as well as the Statement of Common Ground between Norfolk County Council and Hornsea Project Three (REP1-232). In respect to the permanent access to the onshore HVDC converter/HVAC substation, the Applicant would refer to Appendix 29 to the Applicant's response to Deadline 1 (REP1-171). The permanent access is located in an existing gap in the hedgerows due to the presence of an existing farm access, as such impacts to hedgerows and trees are minimised.

Norfolk Vanguard Limited and Norfolk Boreas Limited (REP1-015)

Summary

2.10 The applicant has entered into a Statement of Common Ground with Norfolk Vanguard Ltd and Norfolk Boreas Ltd [APP1-222] and a joint response has been provided to written questions (Q.1.11.9, 1.11.12, 1.12.10, 1.13.3) [APP1-122].

2.11 The SoCG confirms that cumulative and in-combination impacts have been considered by both parties, with discussions on matters pertaining to local traffic and transport continue. The scope of the traffic and transport matters still under discussion to ensure that both parties (Norfolk Vanguard Ltd and the Applicant) continue to work together to ensure alignment of highway threshold levels applied by each project.

Response to Norfolk Vanguard Limited and Norfolk Boreas Limited

Interested Party's Written Representation	Applicant's Response
Norfolk Vanguard and Norfolk Boreas continue to work collaboratively with Orsted in relation to the Hornsea Project Three Offshore Wind Farm, and have progressed a Statement of Common Ground which will be submitted at Deadline 1 by Orsted. Responses to the panel's first written questions directed to Norfolk Vanguard and Norfolk Boreas are also contained in the Statement of Common Ground with Orsted. However, discussions on some matters are still on-going and therefore, at this stage in the Examination, Norfolk Vanguard and Norfolk Boreas reserve the right to attend and make representations at the Compulsory Acquisition Hearing and Issue Specific Hearings relating to matters of interest to Norfolk Vanguard and Norfolk Boreas.	That SoCG confirms that discussions on matters pertaining to local traffic and transport continue to ensure both parties (Norfolk Vanguard Ltd and the applicant) continue to work together to ensure alignment of highway threshold levels applied by each project, i.e. traffic capacity of each road link before significant impacts are expected, and alignment as to the scope of appropriate traffic management measures that may be required as thresholds are reached.
In accordance with the Planning Inspectorate's letter dated 7 November 2018, Norfolk Vanguard and Norfolk Boreas will write to the Planning Inspectorate by Monday 26 November to confirm whether Norfolk Vanguard and Norfolk Boreas wish to speak at the particular Issue Specific Hearings identified in that letter, and will confirm the topics to be addressed.	Noted.
In addition, to the extent that the panel propose to conduct the Accompanied Site Visit at the crossing point between the Norfolk Vanguard/Norfolk Boreas and Hornsea Three projects, Norfolk Vanguard and Norfolk Boreas wish to reserve the right to attend the Accompanied Site Visit.	Noted.

Whale and Dolphin Conservation (WDC) (REP1-022)

Summary

2.12 The Whale and Dolphin Conservation's primary concerns relate to: 1) their lack of involvement in the Marine Mammal Expert Working Group that met as part of the Evidence Plan Process, 2) the adequacy of the baseline surveys used to characterise the use of the area by cetaceans, and 3) the potential for significant impacts resulting from pile driving on the harbour porpoise population supported by the Southern North Sea Site of Community Interest. A point by point response to Annex 1 of WDCs Written Representation is documented below.

Response to Whale and Dolphin Conservation (WDC)

Interested Party's Written Representation	Applicant's Response
WDC comments on Hornsea Three Offshore Wind Farm WDC have been engaging with the UK and devolved government bodies and developers for several years regarding marine renewable energy and providing advice regarding marine renewable developments and their potential impacts on whales, dolphins and porpoises (cetaceans). WDC is commenting on issues relating to cetaceans only. Due to the impacts of climate change on cetaceans [1], WDC supports the development of well-considered marine renewable energy. However, we have serious concerns about the potential impacts these developments, both individually and cumulatively, have on cetaceans. These concerns are detailed in our report "Marine Renewable Energy: A Global Review of the Extent of Marine Renewable Energy Developments, the Developing Technologies and Possible Conservation Implications for Cetaceans" available at http://uk.whales.org/sites/default/files/wdc-marine-renewable-energy-report.pdf [1] WDCS and WWF. 2007. Whales in Hot Water. The Impact of a Changing Climate on Whales, Dolphins and Porpoises: A Call for Action. Available at http://www.wdcs.org/submissions_bin/whales_hot_water.pdf	Noted.
WDC welcome the opportunity to comment on the proposed Hornsea Three offshore wind farm development. We understand that there is a Marine Mammal Expert Working Group (EWG) that has been discussing issues related to marine mammals during various stages of consultation. Unfortunately WDC was not part of that group, although we sit on Marine Mammal EWG for a number of other offshore wind farm developments. WDC was consulted by the applicant in April 2017 to discuss the project and the EWG, but were not included in the EWG despite our request to be involved and assurances we would receive consultation documents. The first opportunity WDC had to input was in response to the PEIR in September 2017, which was followed by an update meeting with the applicant in March 2018. Just prior to this meeting WDC was provided with all EWG meeting minutes and resources.	The Applicant notes the points raised by WDC and whilst it acknowledges that the consultation process was not as efficient with WDC as it perhaps could have been, does not consider that WDC had ample opportunity to engage with the project both formally (I.e., through Scoping and Section 42) and informally prior to consent application. Throughout 2018 the Applicant has held regular constructive meetings with WDC and this has continued through the examination phase and will continue as the project moves towards construction.
We are particularly concerned with the lack of reliable baseline	The Applicant has agreed the approach to baseline surveys

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surveys to collect data on the use of the area by cetaceans. The data that has been used by the applicant is not current and has not used methodology appropriate for surveying cetaceans; this is acknowledged by the applicant themselves. Without scientifically robust surveys to gather this data, there is not a reliable baseline to assess the impacts of Hornsea Three on cetaceans, in particular harbour porpoise (Phocena phocena) and the Southern North Sea SCI (SNS SCI) for which harbour porpoise is a qualifying feature. Therefore WDC cannot agree with the conclusions in the Environmental Statement of the impacts on cetaceans, and in particular the Habitat Regulations Assessment (HRA).	with the SNCB (as presented in Table 3.2 of the All other Matters SoCG with Natural England). Furthermore, the approach to baseline data collection followed standard, scientifically robust methodology for the collection of site specific density information on marine mammals. In addition, the baseline characterisation was augmented by the consideration of multiple data sources describing the marine mammal density and distribution at the site and wider area.
The details of our concerns for Hornsea Three Offshore Wind Farm development are detailed in Annex 1. Our primary concern surrounds the intense noise pollution resulting from pile driving for all cetacean species in the region, and the impacts on the harbour porpoise population supported by the Southern North Sea Site of Community Importance (SNS SCI). Should consent be granted, our key recommendations for this development are (our full list of recommendations are detailed in Annex 1): • That pile driving is not used at all during construction; • If our recommendation of no pile driving is disregarded, that strict limits be placed on noise levels during construction, including cumulative noise, and that proven mitigation methods (such as a bubble curtains) are in place around the source to mitigate the impacts of radiated noise levels; • That a robust impact monitoring strategy (Marine Mammal Monitoring Plan) is developed for the range of species that can reasonably be expected to be impacted; • That WDC is included as a consultee for the development of the MMMP; • That the monitoring strategy is appropriate to consider cumulative impacts of all developments in the region; • A robust MMMP should include: proven mitigation measure, marine mammal observers (MMOs) and passive acoustic monitoring (PAM) used in conjunction at all times and shut-down when marine mammals approach within a specified distance of operations (mitigation zone) • Ground-truthing of modelled noise assessment data should be undertaken; • An assessment report be publicly available within a reasonable timeframe of construction completion;	The Applicant's response to these concerns have been documented in SoCG with WDC as submitted at Deadline I. The worst case scenario approach and the assumptions were agreed with the SNCB and the MMO. Additional information supporting the levels of precaution in the Applicant's assessment of the effects of piling noise has also been presented in Appendix 14 to the Applicant's Deadline I submission. Further discussion of the cumulative level of impact is presented in Appendix A of the All other Matters SoCG with Natural England as submitted at Deadline I, and in Appendix B of the SoCG with The Wildlife Trusts and Norfolk Wildlife Trust as submitted at Deadline I.
Annex 1 General Comments We recognise that the conclusions drawn are a 'worst case scenario' when assessing the impact on marine mammals, and believe this to be appropriate given the considerable unknowns surrounding the development of the wind farm. But, as they are deemed realistic, they should be treated accordingly. However, the worst case scenarios are based on impacts of pile driving; if alternative foundations are used there will be significantly different	With regard to the General Comments: The worst case scenario approach and assumptions are agreed with the SNCB and the MMO. The approach taken ensures that the application considers the worst possible design scenario for any given impact. Any other design scenario (such as alternative foundation type) will have less of an effect on marine mammals than that presented in the application With regard to project location in relation to the SNS SCI: The Applicant has given full consideration of the potential effects on the SNS SCI within the RIAA and this includes following

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impacts on the environment. Location of Hornsea Three Offshore Wind Farm Although Hornsea Three does not lie directly within the Southern North Sea Site of Community Importance (SCI) (SNS SCI), it's very close proximity, at just 2 km, means that the wind farm construction will impact the SCI both alone and in-combination. WDC are glad to see that the Applicant recognises the importance of the Hornsea Zone for cetaceans, in particular harbour porpoises as Hornsea Three lies in very close proximity to the SCI, with the cable corridor going through the SCI. It has been identified that harbour porpoise use the area where Hornsea Three Offshore Wind Farm offshore wind farm is to be located particularly in the summer months (JNCC, 2016). As a SCI the Southern North Sea is a strictly protected site, designated under the EC Habitats Directive, with a specific Conservation Objective of "To avoid deterioration of the habitats of the harbour porpoise or significant disturbance to the harbour porpoise, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to maintaining Favourable Conservation Status for the UK harbour porpoise." (JNCC, 2017). Developing this area is of particular concern to WDC as the noise generated during construction, from pile driving in particular, has the potential to displace cetaceans and particularly harbour porpoises from the site. Studies suggest that harbour porpoises did not later return to their usual numbers (Brandt et al., 2011; Carstensen et al., 2006; Teilmann and Carstensen, 2012), and it is not clear if the animals are returning to the area, or using it in the same way. The applicant should take into account the draft Conservation Objectives provided in the SCI consultation documents - that the site integrity must be maintained and there is no adverse impact on the population of harbour porpoise at the site. Site based protection cannot be met by assessing the whole North Sea population, but only by assessing the impacts for the number of individuals that are supported by the site (Rees et al., 2013)).	the SNCB advice on assessments for the relevant Conservation Objectives. A detailed response on this issue was provided in Section 1.2.16 of the Applicant's Comments on Relevant Representations Submitted for Deadline I. With reference to the point about the potential for long term displacement, the Applicant acknowledges that in one early study (described in Carstensen et al., 2006 and Teilmann and Carstensen, 2012), where monitoring extended beyond the construction phase at Nysted offshore wind farm, harbour porpoise detection rates reduced during the construction and remained low thereafter. However, it is important to note that this was in an area not thought to be particularly important for harbour porpoises relative to nearby areas so animals may have had little motivation to return. Since then a significant number of studies have since been published which highlight that porpoise activity does recover at offshore wind farms once piling ceases and in some cases even at increased levels (e.g. Scheidat et al. 2011). Scheidat, M., J. Tougaard, S. Brasseur, J. Carstensen, T. van Polanen Petel, J. Teilmann, and P. Reijnders. 2011. Harbour porpoises (Phocoena phocoena) and wind farms: a case study in the Dutch North Sea. Environmental Research Letters 6:1-10.
Developing this area is of particular concern to WDC as the noise generated during construction, from pile driving in particular, has the potential to displace cetaceans and particularly harbour porpoises from the site. Studies suggest that harbour porpoises did not later return to their usual numbers (Brandt et al., 2011; Carstensen et al., 2006; Teilmann and Carstensen, 2012), and it is not clear if the animals are returning to the area, or using it in the same way. The applicant should take into account the draft Conservation Objectives provided in the SCI consultation documents - that the site integrity must be maintained and there is no adverse impact on the population of harbour porpoise at the site. Site based protection cannot be met by assessing the whole North Sea population, but only by assessing the impacts for the number of individuals that are supported by the site (Rees et al., 2013)).	
European Protected Species (EPS)	The Applicant agrees that an EPS licence may be required if

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We recognise the timeframe within which the industry is required to build in order to meet targets, however, the requirement to understand and mitigate impacts to ensure strict protection of European Protected Species (EPS), including all cetacean species, remains. If pile driving is conducted, an EPS licence will be required	piling forms part of the final scheme design.
Baseline survey methodology WDC recognise that a number of site surveys have been undertaken to understand the use of the area by marine mammals, and provide a baseline upon which to assess the impacts of the development. However we are very concerned that the data are inadequate as the surveys are not current, do not cover the Hornsea Three area and use methodologies that are not designed for surveying marine mammals. These concerns are detailed below. Therefore, WDC does not agree with the applicant's conclusion that there is suitable baseline against which to assess potential impacts from Hornsea Three. We are concerned that the data cannot be relied upon to make an assessment, and any resulting analysis is likely to be inaccurate and misleading. WDC are very concerned that there have been no cetacean surveys undertaken of the proposed cable corridor. As the corridor passes through the SNS SCI, it is particularly important that scientifically robust surveys of the cable corridor are carried out to ensure that there is an adequate baseline data to assess the impacts of the cable corridor on the harbour porpoise population supported by the site; and to ensure the conservation objectives of the site are met. Section 2.4.2 of Volume 5, Annex 4.1 – Marine Mammal Technical Report, details the methodology used for visual boat-based surveys, and 2.4.3 covers the boat-based acoustic surveys that were undertaken for marine mammals at Hornsea Three site. The applicant describes how no recent boat-based surveys were undertaken for the Hornsea Three area, and that the data used were from surveys undertaken in between March 2010 and February 2013. No boat-based surveys were undertaken to gather up-to-date and accurate data to base the assessment on, as a result WDC is very concerned that this data has primarily been used to provide a baseline data for this assessment. The fact the data are old and do not reflect the use of the area by marine mammals is acknowledged by the applicant, this makes it inappropriate to use in assessing the area for marine mammals and assessing any impacts. WDC agrees that high definition aerial surveys are suitable for surveying for marine mammals; we have serious concerns over the methodologies used in the surveys for Hornsea Three offshore wind farm. WDC are pleased to see the inclusion of other data sources in table 2.3 (Volume 5, Annex 4.1 – Marine Mammal Technical Report), including the use of the recent SCANS III data to assist with assessing marine mammal populations, and potential impacts on marine mammals. However, the SCANS surveys are only one seasonal snapshot in time, with a 10 year gap between datasets. It is not therefore appropriate to be used for estimates of density and	The Applicant maintains that the approach to baseline data collection followed standard, scientifically robust methodology for the collection of site specific density information on marine mammals. As highly mobile animals that spend the majority of their time underwater, all available methods of surveying marine mammals have associated advantages and limitations. The advantages and limitations of such methods are well known and documented by the Applicant in Annex 4.1 Marine Mammal technical Report (APP-106). Furthermore, the baseline was augmented with several other existing data sets describing cetacean use of the site and wider area. Taken together these data sources provide an adequate baseline for the purposes of informing a robust EIA. The methodology adopted for the baseline surveys and the resulting approach to incorporating the survey data alongside existing data into the quantitative impact assessment was discussed and agreed with the SNCB as presented in Table 3.2 of the All other Matters SoCG with Natural England Submitted for Deadline I, with the MMO (Table 3.4 of the SoCG with the MMO as submitted at Deadline I) and also with The Wildlife Trusts as presented in Table 3.2 of the SoCG with TWT and NWT as submitted for Deadline I.

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finer-scale information is required where such data are not available (Green et al., 2012). We are also concerned that the other datasets are not recent or are ad-hoc data and that are not dedicated marine mammals surveys, and some only cover small parts of the Hornsea Three area. Whilst useful information they cannot be relied upon to provide a reliable baseline or plug gaps in knowledge, particularly as the marine mammal surveys carried out by the applicant are not sufficient. The site based surveys that have been undertaken have shown the area to be incredibly important for harbour porpoise, with densities significantly higher than the surrounding area and wider North Sea. Due to our concerns over the methodology used, it is highly likely that the data under-represent the numbers of marine mammals in the area. WDC raised concerns on the boat-based surveys methodology at the time when Hornsea Two was being consulted upon. We are disappointed to see that the applicant has not taken these concerns on board, or rectified the situation by undertaking scientifically robust surveys in the intervening four years, on which accurate assessment can be undertaken. In table 4.7 of Volume 2, Chapter 4 – Marine Mammals of the Environmental Statement, the applicant details that only 10% of the data from these aerial surveys was analysed. WDC question this approach and why the complete dataset was not analysed. Although we have concerns regarding the methodology of the aerial surveys, the resulting data are the only current survey of the Hornsea Three area, and given the lack of other reliable data to provide a baseline for assessment, the complete dataset must be analysed to provide some kind of baseline. Boat-based Surveys Section 2.4.4.1 of the Environmental Statement: Volume 5, Annex 4.1 – Marine Mammal Technical Report shows that only 18 months of aerial surveys was undertaken; for the high definition aerial surveys to be scientifically robust they need to be undertaken for a minimum duration of 2 years to ensure that variations are accounted for and to ensure scientifically robust and reliable baseline data. If the aerial surveys undertaken by the applicant had been sufficient to provide the data required, this would not be as much of a concern, however as the aerial surveys are inadequate to fill the data gap (see below), WDC are concerned that there is a significantly large gap of four years where no suitable data on the use of the area by cetaceans has been collected. This is of particular concern due to Hornsea Three's proximity to the SNS SCI and the impacts of the development on the harbour porpoise population supported by the site. Additionally, WDC has serious concerns regarding the methodology of boat-based visual surveys that were undertaken between March 2010 and February 2013. Our overarching concern is the methodology that was used for the boat-based surveys as it was designed for ornithology surveys, not for marine mammals. Marine mammal surveys that are developed as an add-on to boat-based bird surveys are inadequately designed monitoring programmes	

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that cannot provide a sufficient baseline to characterise the environment. This is acknowledged by the applicant themselves in section 2.6.1. of Volume 5, Annex 4.1 – Marine Mammal Technical Report "The design of the boat-based survey was primarily to record bird sightings, with marine mammals to be recorded if also observed. As the surveys were not dedicated marine mammal surveys, this may lead to the possibility of animals being missed", despite the fact the applicant recognises that the marine mammal surveys are not fit-for purpose, and that this issue was raised during consultation for Hornsea Two, this issue has not been addressed. We also have concerns on the methodology used for the acoustic surveys that were undertaken during the boat-based surveys as they did not cover the Hornsea Three area. We recognise that the area planned to be surveyed had to be adjusted, and this has led to holes in the dataset; however this gap in the dataset has not been addressed. Whilst these surveys can add useful data, harbour porpoise can potentially spend a significant amount of time underwater asleep, in periods of up to 24 minutes (Wright et al., 2017). These dives are often devoid of any vocalisation, and therefore are undetectable to passive acoustic monitoring (PAM), resulting in any environmental impact assessment underestimating the potential impacts on cetaceans (Wright et al., 2017). Aerial Surveys The camera resolution for the marine mammal surveys was set for the resolution required for seabirds (2.6.1.3 Volume 5, Annex 4.1 – Marine Mammal Technical Report). The applicant acknowledges this is higher than required for marine mammals which, although it does aid in species identification, reduced the time in which the surfacing activity of harbour porpoises could be captured. It is possible that harbour porpoises were missed during aerial surveys resulting in an unreliable dataset. Again we are concerned that the methodology that was used for the aerial were designed for ornithology surveys, not for marine mammals, and without an adequate methodology for aerial surveys of marine mammals, the aerial surveys cannot provide a sufficient baseline to characterise the use environment by marine mammals. Additional data sources on marine mammals	
Potential impacts Pile Driving WDC note that the foundation type has yet to be finalised, and are pleased to see that various foundation types are being considered for Hornsea Three. However, we are concerned to see that foundations requiring piling are included, in particular monopiles. Pile driving, even with the use of pin piles, has the potential to cause physical harm, as well as displacement. We strongly recommend that monopile, or pin pile, foundations are not used due to the noise levels generated by pile driving. Noise levels during construction remain a key marine mammal concern due to pile driving of foundations. We recognise that worse case scenarios have been used when modelling the noise impact on marine mammals from pile driving and believe this to be appropriate given the considerable unknowns surrounding the development of the wind farm. However we would like to see	The Applicant has provided a detailed response to the issues raised by WDC with respect to the potential impact of pile driving in several submissions in response to Deadline I (Appendix B of the SoCG with TWT and NWT, Appendix A of the SoCG with Natural England, Appendix 14 and responses to the NE and TWT Relevant Representations on this point). The Applicant maintains that it has presented a robust assessment of the potential effects of pile driving on all marine mammal species. With respect to the inclusion of concurrent pile driving in the cumulative impact assessment, the Applicant would highlight that the effect of concurrent piling in multiple locations is fully assessed in the Hornsea Three alone assessment (Section 4.11 of Volume 2, Chapter 4 – Marine Mammals, APP-064), and that the numbers of animals predicted to be affected for both single and concurrent piling are presented in the cumulative impact assessment. The cumulative scenario

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consideration of the full range of potential impacts from other foundations being assessed as many will still involve piling activity and will have different potential impacts i.e. gravity foundations will create less noise, however they could have a much larger impact on the benthic fauna including sandeels, a main prey species for harbour porpoises and northern minke whales (Balaenoptera acutorostrata). Reactions of harbour porpoises to the pile driving process have been recorded at distances many kilometres from the piling location (Brandt et al., 2018, 2011; Carstensen et al., 2006; Dähne et al., 2013; Thomsen et al., 2006). Research has shown the noise generated by the construction of offshore wind farms was loud enough to be audible by harbour porpoises beyond 80 km from the source and could mask communication at 30 – 40 km (Thomsen et al., 2006). Bottlenose dolphins (Tursiops truncatus) could exhibit behavioural responses at distances of up to 40 km from pile driving locations (Bailey et al., 2010). The research conducted so far has shown the potential for pile driving to cause behavioural changes in harbour porpoises which leave the area during construction and in some instances did not later return to their usual numbers (Brandt et al., 2011; Carstensen et al., 2006; Teilmann and Carstensen, 2012). Some studies have shown harbour porpoise start to return in one area, yet years later have not returned to other areas (Snyder and Kaiser, 2009). The longest running study into the effects of windfarms on harbour porpoises shows that ten years later, the population has only recovered to 29% of the baseline level (Teilmann and Carstensen, 2012). Even where areas have been recolonised, it is not clear if these are the same animals returning or new animals moving into the area, or if the animals are using the area in the same way. Currently there are limited studies to demonstrate the potential impacts of pile driving on other cetacean species; however minke whales are vulnerable to the impacts of intense noise pollution. There was a significant decrease in northern minke whale sightings rates in western Scotland during periods of naval exercises (Parsons et al., 2000). From recordings taken during pile driving in the Moray Firth, (Bailey et al., 2010) suggested that northern minke whales, and other mid- and low-frequency hearing cetaceans, may exhibit behavioural disturbance up to 50 km away from the source. We note that the maximum construction period would be 2.5 years, potentially using two vessels, in either one phase or two phases with a three year gap in between. Harbour porpoises would be excluded from the site for the duration of the pile-driving phase (s). The construction of Hornsea Three has the potential to have a very high impact on the harbour porpoise, in particular the population supported by the SNS SCI. Harbour porpoise are reported to live up to 23 years, but rarely live over 12 years of age. They reach sexual maturity at 3-4 years and calving occurs every 2 years; therefore the potential impact of pile-driving for 2.5 years on the harbour porpoise population is high, and potentially affecting breeding and feeding activity. The impact of this piling activity is as acknowledged in section 6.5 of the Habitats Regulations Assessment Harbour porpoise use echolocation to detect their prey, and due to	ultimately assessed included single vessel operation on all included projects as it was deemed extremely unlikely that all projects would be piling with multiple vessels. This was a precautionary worst case scenario as it demonstrates the longest overall period of piling and the lowest amount of overlap between neighbouring impact areas. With respect to the comments and the evidence presented by WDC about harbour porpoises returning to areas after pile driving, the Applicant refers to the previous response on this point above. On the issue of TTS, it was agreed with Natural England and the MMO to only present TTS ranges in the assessment as it was not possible to base any assessment of impact significance on these ranges as defined. This is because the thresholds upon which these ranges are determined, do not indicate a biologically relevant degree of impairment. This has been agreed with the SNCB (as detailed in Table 3.2 of the All other Matters SoCG with Natural England as submitted for Deadline I).

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a high metabolism they need to feed continuously to meet energy needs, therefore they are highly sensitive to disturbance (Wisniewska et al., 2016). Loud noises, such as pile driving, can cause harbour porpoise to be displaced (Dähne et al., 2013) from potential important feeding grounds. Additionally harbour porpoise can lose 4% of their body weight in just 24 hours from starvation (Kastelein, 2018). Prolonged disturbance and restricted access to feeding grounds has the potential to pose a risk to life for individuals and as a result an impact on the harbour porpoise population. Given the importance of the Hornsea Three area and the SNS SCI for harbour porpoise, most likely as prime foraging areas, displacement from the area could be very significant. Although it is likely that pile driving activity will not be constant, the installation of monopile foundations has been found to have a profound negative effect on harbour porpoise acoustic activity up to 72 hours after pile driving activity (Brandt et al., 2011). It is unlikely that harbour porpoises will return to an area during these gaps, resulting in them most likely being excluded from the area for the entire duration of construction. WDC are pleased to see that INSPIRE modelling has been used to predict underwater noise levels from the construction of Hornsea Three. Whilst we feel this is model is appropriate, the model has been found to under predict noise levels (Spiga, 2015) which can potentially lead to underestimate the impact of piling on cetaceans. We are also pleased to see that National Oceanic and Atmospheric Administration (NOAA) guidance (National Marine Fisheries Service (NMFS), 2016) has been used to assess the impacts of pile driving on cetaceans. However we are concerned that that applicant has only considered Permanent Threshold Shift (PTS) as auditory injury, and has not undertaken assessment of Temporary Threshold Shift (TTS) despite having the information included in the model (sections 4.11.1.16 & 4.11.1.17 of Volume 2, Chapter 4 – Marine Mammals). WDC strongly disagree with this approach, the recovery time from TTS varies widely and is dependent on the length of exposure and the level of exposure (Kastelein et al., 2012; Lucke et al., 2009) [2]. With a construction window of 2.5 years, TTS has the potential to significantly impact harbour porpoise (both stand-alone and cumulatively), in particular feeding behaviour. Also multiple displacement can lead to higher stress levels and a potential for hearing impairment (Dähne et al., 2013; Forney et al., 2017) and impacts on survival and reproduction (Forney et al., 2017). Without TTS included in the assessment, the results and conclusions are inaccurate and misleading. The assessment of harbour porpoise 'Significance of effect ' from the different scenarios – piling location, single vessel, monopile, pin pile etc. (in of Volume 2, Chapter 4 – Marine Mammals), states for each scenario that there will be 'minor adverse significance'. Due to the sensitivity of harbour porpoise to piling activities, the exclusion of TTS and insufficient baseline data WDC strongly disagrees with these conclusions. Report to Inform Appropriate Assessment, where it states piling activity could "potentially lead to reproductive failure over up to a maximum of four breeding cycles". For harbour porpoise population this is a significant period of time. We are very concerned in the	

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implications of this in relation to harbour porpoise population numbers within the Management Unit and the impacts on the SNS SCI. [2] WDC recognise that currently the only auditory studies of harbour porpoise are undertaken in captive facilities. Whilst WDC does not agree with the methodology, we acknowledge that this is currently the only data available to use in this type of assessment. WDC note that there could be two vessels driving piles at any one time, and that pile-driving will start at one site, and then continue at another (which may be adjacent to the pile already being driven or in another area of the wind farm). We are concerned that the cumulative impact assessment does not include pile driving commencing at a second location, whilst the first is still being driven. The impact of the second pile driving location on cetaceans is highly dependent upon the location of the second pile-driving site which is likely to have a different potential area of impact to the first. In addition, having a second pile-driving location will increase the noise levels generated and have a cumulative impact. We recommend that the same consideration is given to marine mammals when the second pile-driving occurs as is given to the first and that it is not assumed that animals have moved out of the area as pile driving has already commenced elsewhere.	
Prey availability We have considerable concerns about prey impacts resulting from the development, particularly on sandeels, mackerel, whiting and sprat – all of which are major prey species for the harbour porpoise and are in the Hornsea Three area. Any development has the potential to change the prey availability and it is uncertain if marine mammals would be able to adapt to any changes. As harbour porpoise need to feed almost continuously (Wisniewska et al., 2016), small changes to their ability to forage, and their prey availability has the potential to have a significant impact (Kastelein, 2018). Additionally the construction and decommissioning of Hornsea Three will disturb the sea bed, causing a rise in sediments and habitat of prey species. This is likely to cause changes to prey availability and potentially foraging ability for harbour porpoises.	The effect of impacts on prey species on marine mammals has been assessed as detailed in Section 4.11 of Section 4.11 of Volume 2, Chapter 4 – Marine Mammals (APP-064). No significant impacts have been predicted on any prey species as a result of the construction, operation of decommissioning of Hornsea Three offshore wind farm, as detailed in Volume 2, Chapter 3: Fish and Shellfish Ecology). The effect of disturbance to the seabed affecting foraging ability has been assessed as detailed in Section 4.11 of Volume 2, Chapter 4 – Marine Mammals, APP-064. The outcomes of these assessments has been agreed with the SNCB (as presented in Table 3.2 of the SoCG On all other Matters with Natural England as submitted for Deadline I.
Operational noise Whilst it is anticipated that operational noise levels will be much lower than construction noise, there are limited data available on operational noise impacts on marine mammals, so a long-term monitoring plan should incorporate operational noise impacts on cetaceans if the development goes ahead, that covers the life span of the development.	The Applicant considers that any monitoring should be proportionate, pragmatic and should focus on the impacts where the potential for significant effects is being debated or where significant amounts of uncertainty exist. The Applicant maintains that operational noise does not fall into these categories and therefore should not be the focus for monitoring. Therefore no operational noise monitoring is proposed.
Vessel noise WDC is concerned about the impacts of increased vessel activity throughout the life of the development, but particularly during construction and decommissioning. Increased vessel noise can interrupt harbour porpoise foraging behaviour and echolocation, which can lead to significantly fewer prey capture attempts (Wisniewska et al., 2018). There is an increased risk of collision	The increase in vessel activity resulting from construction and operation has been assessed in Section 4.11 and Section 4.12 of Volume 2, Chapter 4 – Marine Mammals, (APP-064). The methodology for assessment and the outcome of the assessment has been agreed with the SNCB (as detailed in Table 3.2 of the All other Matters SoCG with Natural England as submitted for Deadline I).

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and disturbance to cetaceans from increased vessel activity (Dyndo et al., 2015; James, 2013). This is of particular importance as there are expected to be a large increase in the number of vessels in the Hornsea Three area during construction and decommissioning, with up to 10,774 return trips for each stage (table 4.15, & 4.11.3.11, Environmental Statement: Volume 2, Chapter 4 – Marine Mammals), and 2,885 return trips per year during operation (table 4.2, Habitats Regulations Assessment Report to Inform Appropriate Assessment).	
Cumulative Effect Assessment The purpose of the Cumulative Effect Assessment (CEA) is to try and assess the effects of the development on the population of cetaceans in the area; therefore all projects that have the potential to impact that population must be considered. WDC is pleased to note the applicant has included a number of offshore industries in this assessment (4.12.1.3 in Environmental Statement: Volume 2, Chapter 4 – Marine Mammals), and that activities across the North Sea Management Unit have been included. Offshore windfarms East Anglia One North, East Anglia Two and Norfolk Boreas also should be screened into the in-combination assessment, currently these have been left out of the list. We recommend that activities other than development of offshore wind farms need to be considered, e.g. shipping, oil and gas exploration and vessel activity to give an accurate assessment of the potential cumulative impacts. In particular we recommend that vessel activity is included in the in-combination assessment as increased vessel noise can interrupt harbour porpoise foraging behaviour and echolocation, which can lead to significantly fewer prey capture attempts (Wisniewska et al., 2018). WDC do not agree with the conclusion that these projects can be screened out, and that they can be considered to have no additional impacts. WDC believe that with these additional projects and activities included, additional proven mitigation measures to those the Applicant has committed to, are required to reduce the predicted impacts in the CEA. Due to the location of Hornsea Three to the Southern North Sea harbour porpoise SCI, the applicant should take into consideration the planned installation of all wind farms, as well as other activities within and adjacent to the site, including developments across boundaries, with the potential to disturb the harbour porpoise SCI population. WDC does not agree with the conclusion of the CEA that there will only be "minor adverse significance, which is not significant in EIA terms", as any conclusion based on an incomplete assessment is unreliable, we recommend that the CEA is revised. We also recommend a robust monitoring programme should be a requirement of consent to ground-truth any assessment conclusions. Guidelines for in-combination assessment state that other developments, including cross boundary developments must be taken into account when undertaking the assessment. Cumulative effects from across marine boundaries need to be considered to consider all potential transient impacts across such boundaries,	With regard to the offshore wind farms not currently included in the CEA: East Anglia One North, East Anglia Two and Norfolk Boreas, whilst these are not included in the updated assessment provided by the Applicant at Deadline 1 (Appendix 16 to Hornsea Three Deadline I Submission: Applicant's Response to Ex.A Question Q1.15.3), the Applicant can confirm that they would fall into the Tier 3 assessment and given that no detailed information is available beyond the Scoping Reports, this would not facilitate meaningful consideration of them or change the existing conclusions. If quantified information (in the form of draft EIA material) becomes publicly available within the examination timeframe then the Applicant will update the assessments accordingly. The Applicant has provided a detailed response with respect to the inclusion of ongoing levels of existing activity in the CEA. This is detailed in Appendix B of the SoCG with TWT and NWT as submitted for Deadline I and in the Applicant's response to TWT's Relevant Representation. With regard to the issue of concurrent piling at two locations in the CEA, please see previous comments on this point, above.

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especially considering the mobile nature of cetaceans.	
Mitigation methods WDC notes that the JNCC guidance for minimising the risk of injury to marine mammals from piling noise (JNCC, 2010) have been detailed in the ES. We recognise that currently these are the only guidelines available to developers to use to minimise the impacts of piling activity on marine mammals, however it is widely known that these guidelines are outdated, and do not use the latest scientific evidence. The in-situ methods in the JNCC guidelines have been widely criticised as arbitrary and with a lack of supportive evidence (Wright and Cosentino, 2015). Additionally the guidelines have not been updated for a number of years and therefore do not include the latest and increasing body scientific data of the impacts of noise on marine mammals (Wright and Cosentino, 2015). WDC, in particular, have concerns over the guidance that soft-starts should be used and the use of Marine Mammal Observers (MMOs). WDC do not consider 'soft-start' to be an adequate mitigation measure as they are only a reduction in sound source at the initiation of a piling event. It cannot be assumed that cetaceans will leave an area during a soft-start as they may be remain the area due to prey availability or breeding despite the harmful noise levels (Faulkner et al., 2018). Whilst a common sense measure, soft-starts are not a proven mitigation technique and so cannot be relied upon to mitigate impacts, especially for developments in close proximity to important and critical habitat areas. We also have serious concerns regarding the JNCC protocol for using marine mammal observers (MMOs) and PAM operators to ensure that no marine mammals are within 500m of a pile driving site before commencing pile-driving. The use of MMOs and passive acoustic monitoring (PAM) to detect animals is a monitoring measure, not a mitigation measure. We are concerned that acoustic deterrent devices (ADDs) such as pingers may be used to move marine mammals out of the area. Not only will this add another source of noise into the environment (Faulkner et al., 2018), the use of ADDs has not been proven as a mitigation for pile driving and cannot be relied upon for the range of species likely to be encountered in the wind farm region. The range of displacement from ADDs has the potential to exceed the range of displacement from pile driving itself when using bubble curtains (Dähne et al., 2017). Furthermore, the short and long-term impacts of ADDs on marine mammals need to be thoroughly considered. Our concerns with the SNCB guidance on noise management within mobile species marine protected areas (MPAs), and our views and recommendation are attached at the end of this document. Other studies have shown a smaller, but still significant reduction in noise levels and disturbance area, bubble curtains can reduce the range at which pile driving can be heard by harbour porpoises (Brandt et al., 2018) and may reduce temporary habitat loss and risk of hearing loss in harbour porpoises (Dähne et al., 2017). Harbour porpoise detections at 10-15 km from a piling location	The Applicant has made a number of detailed responses on the commitments made to ensure that appropriate mitigation is applied if determined necessary at such a time when final scheme design is available and there is certainty on the overlap of other plans and with the construction of Hornsea Three (as detailed in SoCG with WDC as submitted for Deadline I, All other Matters SoCG with Natural England and Appendix 15 to Deadline I submission). The Applicant commits to developing the Site Integrity Plan using standard, accepted mitigation techniques following current SNCB guidance to meet regulatory requirements at such a time that final scheme design.

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declined by around 50% without a bubble curtain, but with this mitigation in place there was only a 17% decline (Brandt et al., 2018). When this is extrapolated to the potential 300 piling locations for Hornsea Three, these mitigation methods could provide a significant reduction in the impact of piling on harbour porpoise in particular. WDC strongly recommend that only mitigation methods that are proven should be considered. WDC, in particular, have concerns over the guidance that soft-starts should be used and the use of Marine Mammal Observers (MMOs). WDC do not consider 'soft-start' to be an adequate mitigation measure as they are only a reduction in sound source at the initiation of a piling event. It cannot be assumed that cetaceans will leave an area during a soft-start as they may be remain the area due to prey availability or breeding despite the harmful noise levels (Faulkner et al., 2018). Whilst a common sense measure, soft-starts are not a proven mitigation technique and so cannot be relied upon to mitigate impacts, especially for developments in close proximity to important and critical habitat areas. We are concerned that acoustic deterrent devices (ADDs) such as pingers may be used to move marine mammals out of the area. Not only will this add another source of noise into the environment (Faulkner et al., 2018), the use of ADDs has not been proven as a mitigation for pile driving and cannot be relied upon for the range of species likely to be encountered in the wind farm region. The range of displacement from ADDs has the potential to exceed the range of displacement from pile driving itself when using bubble curtains (Dähne et al., 2017). Furthermore, the short and long-term impacts of ADDs on marine mammals need to be thoroughly considered. A number of mitigation methods to reduce noise from piling activities have been proven in demonstration scale trial studies (AdBm Corp, 2014; Diederichs et al., 2013; Wilke et al., 2012). Studies at full scale offshore wind farms have shown that the use of bubble curtains during pile driving activities can reduce the disturbance area on harbour porpoises from ~15 km to ~5 km compared to piling with no mitigation, totalling ~90% reduction in harbour porpoise disturbance area (Nehls et al., 2016). Other studies have shown a smaller, but still significant reduction in noise levels and disturbance area, bubble curtains can reduce the range at which pile driving can be heard by harbour porpoises (Brandt et al., 2018) and may reduce temporary habitat loss and risk of hearing loss in harbour porpoises (Dähne et al., 2017). Harbour porpoise detections at 10-15 km from a piling location declined by around 50% without a bubble curtain, but with this mitigation in place there was only a 17% decline (Brandt et al., 2018). When this is extrapolated to the potential 300 piling locations for Hornsea Three, these mitigation methods could provide a significant reduction in the impact of piling on harbour porpoise in particular. WDC strongly recommend that only mitigation methods that are proven should be considered.	

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Mitigation and the Southern North Sea SCI Studies have shown that in areas of high site fidelity, traditional mitigation methods that attempt to minimise injury by moving animals out of an area as noise levels are gradually increased, can be counterproductive for small, localised marine mammal populations for which displacement may cause harm. This is a particular concern in breeding and feeding areas (Forney et al., 2017). A study analysing benefits of noise reduction to harbour porpoise during offshore wind construction found that if wind farms inside the Southern North Sea SCI reduced their noise levels by the equivalent of around 8dB, the risk of a 1% annual decline in the North Sea porpoise population can be reduced by up to 66% (WWF, 2016). As bubble curtains have the potential to reduce noise levels by 7dB (Brandt et al., 2018) using these proven mitigation methods is the only way to reduce the far reaching avoidance distances for cetaceans. Whilst a 7dB noise reduction at 750 m may seem a limited area, this reduction could also be enough to change the noise levels from piling activities from 'lethal' down to 'disturbance levels'. This could be very important, especially when extrapolated for hundreds of piling events.	The Applicant maintains that the assessment of the noise disturbance levels on marine mammal populations is robust. Further detail on this has been provided in our response to comments in TWT's written representation (detailed below in our response to point 1.2 of Appendix A in TWT's Written Representation). Furthermore the Applicant would highlight that none of the marine mammal species predicted to be affected by Horsnea Three can be described as a "small, localised population". The Applicant would also highlight that the noise levels from piling activities at Hornsea Three are not predicted to be 'lethal'.
Marine Mammal Mitigation Protocol (MMMP) WDC are pleased to see a commitment to a MMMP. We recognise that the MMMP will be designed closer to construction, once all details and plans are known, and that mitigation methods to be used will be decided at that time. We believe this to be appropriate as this enables the latest proven mitigation methods to be included in the MMMP. However, until the details of the MMP are decided it is erroneous to conclude that the MMMP will ensure that impacts are 'negligible' or 'minor adverse'. We are concerned that the MMMP currently only includes mitigation methods from the JNCC guidelines, and claims that this will mitigate any auditory or physical injury. WDC strongly disagrees with this conclusion, and would like to see a commitment to ensure that only proven mitigation methods are included in the MMMP. Currently there is no modelling of noise mitigation methods. As methods such as bubble curtains show a potential significant reduction in the impacts of noise on harbour porpoise, it is recommend that modelling the effect of this technology is undertaken (Faulkner et al., 2018) in particular to assess cumulative impacts. WDC request to be involved in the consultation of the MMMP to ensure that is sufficient as we have concerns regarding effectiveness of some mitigation methods. We have been included at this stage for other offshore windfarm developments.	The Applicant can confirm the MMMP will be developed using accepted methods, which are fit for the purpose of reducing injury to negligible. The MMMP will contain sufficient evidence to demonstrate that the selected methods are effective. Furthermore, the SIP which will developed to ensure no adverse effects on site integrity of the SNS SCI will also ensure the application of any mitigation deemed necessary to reduce disturbance impacts to acceptable levels. With regard to the request to be a consultee on the MMMP the Applicant notes the MMO's Written Representation (REP1-095) confirms that they will consult with WDC on this document.
Habitats Regulations Assessment (HRA) Although Hornsea Three array area does not lie directly within the	The Applicant maintains that the RIAA was carried out in line with current SNCB advice and aligns with approved

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SNS SCI, it is in very close proximity (less than 2 km in some areas), to the site, additionally the cable corridor overlaps the SNS SCI. The location of Hornsea Three array area and the cable corridor, means that the wind farm construction will impact the SNS SCI both alone and in-combination. Therefore there an assessment must be undertaken not only against the North Sea management unit, but also for the harbour porpoise population supported by the SNS SCI to ensure there is no Adverse Effect on Integrity (AEoI) from the development. One of our main concerns is that the assessment on the harbour porpoise population in the SNS SCI is not being based upon the population of the site, but against the North Sea Management Unit. The HRA must take into account the draft Conservation Objectives provided in the SNS consultation documents - that the site integrity must be maintained and there is no adverse impact on the population of harbour porpoise at the site (JNCC, 2016). WDC acknowledges that the advice from the SNCB's, and within the SNS Site Selection Document, is "because this estimate is from a one-month survey in a single year it cannot be considered as a specific population number for the site. It is therefore not appropriate to use site population estimates in any assessments of effects of plans or projects (i.e. Habitats regulation Assessments), as these need to take into consideration population estimates at the MU level, to account for daily and seasonal movements of the animals" (JNCC, 2017). WDC strongly disagree with this advice, and have raised this issue previously. The European Commission guidance on managing Natura 2000 sites also states that the integrity of the site (habitat and species) must be maintained (European Commission and Office for Official Publications of the European Communities, 2000). Whilst WDC agree with the list of potential impacts for marine mammals listed in Table 3.2 and Table 3.3 of the Habitats Regulations Assessment Report to Inform Appropriate Assessment, we are concerned that TTS is not included in the HRA as over the construction period TTS has the potential to significantly impact the harbour porpoise population of the SNS SCI. Additionally we are concerned about the accuracy of the assessment of the impacts on the SNS SCI from the cable corridor. As the Applicant has not undertaken any appropriate marine mammal surveys of the cable corridor, any assessment and resulting conclusion is likely to be inaccurate. It is acknowledged by the Applicant in 6.5.2.1 of the Habitats Regulations Assessment Report to Inform Appropriate Assessment, that the SNCBs were not consulted on noise modelling requirements from cable installation, and it was assumed that the advice given for Hornsea Project One (H1) and Hornsea Project Two (H2) could be applied. However the SNS SCI consultation began in 2016 [3], after Hornsea Project One was consented (December 2014 [4]), and after Project Two was submitted to the Planning Inspectorate (PINs) in February 2015 (and consented in August 2016) [5] Therefore the advice for H1 and H2 was not applicable for Hornsea Three, and the Applicant should have consulted the SNCBs on the required modelling for the cable	assessments carried out on other projects. On the issue of TTS, see previous comments above. With respect to the comments on the baseline environment of the SNS SCI, please see previous response on the issue of the baseline survey methodology. Furthermore, the SNS SCI is acknowledged as a high density area for harbour porpoises and specifically, the SNCB endorsed assessment methodology for the effects of pile driving on Site Integrity relies on an area based approach, rather than a quantification of the numbers of animals affected. With respect to the BEIS Review of Consents, the draft conclusions do not identify a risk of an Adverse Effect on Site Integrity for any project alone or for projects in combination on the assumption that individual projects commit to a SIP and that they don't deviate outside the design parameters assessed. This is in line with the conclusions of the Hornsea Three RIAA. With respect to WDC's comment about in built mitigation, all cetaceans are European Protected Species and as such, where a licenced activity comes forward that has the potential to result in injury, the proponent will have to demonstrate to the regulator that it has appropriately mitigated the risk of such effects to negligible levels (or secured an injury EPS licence in the event that it is not possible to mitigate such effects), before it is able to proceed. In the case of the projects included within the in-combination assessment, this process is managed through the requirement for a robust MMMP. It is therefore, entirely reasonable to assume that all projects within the in-combination assessment will mitigate the injury risk to marine mammals. The Applicant's recent experience is that auditory injury from pile driving as predicted in the envelopes of projects in currently in the public domain can be adequately mitigated using a range of available, accepted techniques, in-line with current guidance. Therefore the risk of auditory injury to individuals is considered negligible.

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corridor. Due to the lack of scientifically robust site surveys to understand the use of the area by marine mammals (as detailed above in Baseline survey methodology), WDC does not agree that there is a sufficient and reliable baseline data upon which to assess the impacts of the development (both the cable corridor and the array area) on the SNS SCI. The Applicant acknowledges (section 6.5.2.1 Habitats Regulations Assessment Report to Inform Appropriate Assessment) that the modelling for behavioural impacts on harbour porpoise population of the SNS SCI, does not follow the current SNCB advice. Therefore the conclusions of the HRA are unreliable. We are also concerned that section 4.3 of the Habitats Regulations Assessment Report to Inform Appropriate Assessment states that the 'designed-in mitigation' will ensure there is no LSE on the SNS SCI from the development. As detailed above in the 'Mitigation Methods' section, these methods lack evidence to support their effectiveness, and WDC does not agree with the conclusion that "The soft-start will provide an audible cue to allow marine mammals to flee the area before piling at full hammer energy commences. The soft/slow-start will help to mitigate any potential auditory injury". The HRA must consider not only the project independently, but also cumulatively taking into account other plans and projects that will impact the harbour porpoise at both a site and population level. Currently not all planned developments and activities are considered in the Habitats Regulations Assessment Report to Inform Appropriate Assessment. In section 6.7.2.9 of the Habitats Regulations Assessment Report to Inform Appropriate Assessment, it is assumed that mitigation measures of other projects in the area will reduce the impacts of auditory injury from pile driving on harbour porpoises to a level where there will be no adverse effects, and therefore there is no risk of in-combination effects from Hornsea Three. WDC strongly disagrees with this approach as until the mitigation measures for the other projects are finalised, the reduction of auditory impact is unknown, so to base an assessment on this assumption is flawed. Section 6.7.2.15 of the Habitats Regulations Assessment Report to Inform Appropriate Assessment concludes that "Due to the temporary nature of the activity there is no indication that effects would result in a permanent shift in the population or the distribution of the features within this cSAC in the long term", as detailed above, research conducted so far has shown that harbour porpoises leave the area during construction and in the majority instances did not later return to their usual numbers. Even where areas have been recolonised, it is not clear if these are the same animals returning or new animals moving into the area. Due to the results of current research, and that piling activity will last 2.5 years, WDC disagrees with the conclusion that "no adverse effect on the population or distribution of this qualifying feature is anticipated. Nor is there any indication that this impact in-combination with other plans and projects would adversely affect any other factors which are required to ensure that the site is maintained in favourable condition as defined in the Conservation Objectives of this site. On this basis there is no indication of an adverse effect on the Annex II	

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qualifying feature of this cSAC". The results of The Review of Consents being undertaken by The Department for Business, Energy and Industrial Strategy (BEIS) will need to be considered in the marine Mammal Mitigation Protocol (MMMP), in particular the cumulative impacts on the SNS SCI. WDC strongly recommend that there should be an appendix to the HRA that assesses and gives an estimate of the harbour porpoise population of the SCI that may be impacted by the development, based on SCANS III data. This is an approach that has been undertaken by other offshore windfarm developers with offshore windfarms in the SNS SCI. [3] http://jncc.defra.gov.uk/default.aspx?page=7059 [4] https://infrastructure.planninginspectorate.gov.uk/projects/yorkshire-and-the-humber/hornsea-offshore-wind-farm-zone-4-project-one/ [5] https://infrastructure.planninginspectorate.gov.uk/projects/yorkshire-and-the-humber/hornsea-offshore-wind-farm-zone-4-project-two/?ipcsection=overview	
In-field impact monitoring All in-field impact monitoring should be undertaken during construction and operation to ensure that the proposed population modelling impacts calculated in theory are accurate. Should any more negative impacts occur then the development should be halted and mitigation methods revisited. However we note that it is likely that any long-term negative impacts are unlikely to be documented during the timing of construction itself, unless these impacts are dramatic. We have serious concerns over the approach to monitoring impacts of piling on harbour porpoises during construction. We are pleased to see that the Applicant has committed to noise monitoring during construction. However this only covers the first four monopile foundations to ensure the noise levels are within predicted levels, and then it is assumed that all other monopile foundations will be within predicted limits. WDC has concerns about this approach as installing monopile foundations at different locations with different conditions may result in different hammer energy levels required. To fully understand the impacts of piling activities on cetaceans, in particular harbour porpoises, the monitoring should be robust enough to demonstrate the responses of harbour porpoise to piling activities. Monitoring should be undertaken throughout the construction period, and into the operational phase, across the Hornsea Three site to fully assess the impacts of piling. Additionally we would like to see the commitment to monitor piling to any foundations requiring pile driving, not just monopile foundations. We recognise that the details of the monitoring are yet to be finalised, and this will be done with the MMO. We also acknowledge that there will be an In-Principle Monitoring Plan which will set out the monitoring of behavioural disturbance from percussive piling. WDC has not been able to review this document to make	The Applicant's position on monitoring was provided in table 3.1 of the SoCG with WDC as submitted at Deadline I. Furthermore, the Applicant has submitted an In Principle Monitoring Plan (Appendix 2 to the Deadline I Submission) which contains more detail about the proposed approach to marine mammal monitoring. In addition to noise monitoring at the first four piles of each discrete foundation types, the IPMP includes a commitment for further monitoring on the duration of piling activity during the installation of the turbine and substation foundations. Monitoring is also proposed to reduce the uncertainty relating to the population consequences of disturbance, although the exact nature of such monitoring is yet to be defined.

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comments on the plan.	
Decommissioning We are pleased to see that at the moment there are no plans to use explosives during the decommissioning of the wind farm, and that instead decommissioning will most likely will involve cutting of piles and grinding or drilling techniques. We hope that this will continue to be the case when the detailed plan is drawn up because the use of explosives in decommissioning has the potential to cause physical harm or be lethal to cetaceans(Prior and McMath, 2008). We do have concerns regarding the noise levels that may be generated by decommissioning, and recognise that this will be dependent on the methods used to remove the turbine foundations. In 4.11.3 of Volume 2, Chapter 4 – Marine Mammals of the Environmental Statement, and in the Habitats Regulations Assessment Report to Inform Appropriate Assessment, it is concluded that the impacts from decommissioning on marine mammals will be negligible. WDC do not agree with this conclusion as until the removal methods are decided the impacts of such activity remain unknown	Consent for decommissioning will be secured at a future date, once removal methods are known. At this stage the Applicant has presented an indication of the likely effects from such activity based on current methods available for decommissioning structures at sea.
Full list of recommendations Should consent be given to this proposed development, WDC strongly recommends the following consent conditions: • That pile driving is not used at all during construction; • If our recommendation of no pile driving is disregarded, that strict limits be placed on noise levels during construction, including cumulative noise, and that only proven mitigation methods (such as a bubble curtain) are in place around the source to mitigate the impacts of radiated noise levels; • That a robust impact monitoring strategy (Marine Mammal Monitoring Plan) is developed for the range of species that can reasonably be expected to be impacted; • That WDC is included as a consultee of the MMMP; • That the monitoring strategy is appropriate to consider cumulative impacts of all developments in the region; • A robust MMMP should include: • marine mammal observers (MMOs) and passive acoustic monitoring (PAM) used in conjunction at all times and shut-down when marine mammals approach within a specified distance of operations (mitigation zone) • Ground-truthing of modelled noise assessment data should be undertaken; • Should any incident that results in mortality occur during construction, activities should be halted immediately until an investigation can be completed; • An assessment report be publicly available within a reasonable timeframe of construction completion;	The Applicant has responded to these summary points through the Deadline 1 response to Relevant Representations, in the SoCG with WDC and in the sections above in response to the more detailed comments in WDCs Written Representation.

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• Further assessments are made on alternative foundations to fully understand the potential impacts on marine mammals, and prey species; • Visual and acoustic monitoring should be ongoing throughout construction; • Activities should be halted when marine mammals approach within a specified distance of operations (mitigation zone); • That the monitoring strategy is appropriate to consider cumulative impacts of developments within and adjacent to the SNS SCI; • Collected data are made available to all stakeholders, and that acceptable levels of impact(s) are clearly identified through the Marine Mammal Monitoring Plan and that an adaptive approach is applied, where development is halted should significant impacts be observed.	
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Assessing the Benefits of Noise Reduction to Harbour Porpoises During Offshore Wind Farm Construction.	

The Wildlife Trusts (TWT) (REP1-023)

Summary

2.13 The Wildlife Trust's primary concerns relate to:

- Cumulative impacts from underwater noise disturbance on harbour porpoise
- Impacts on the Southern North Sea SCI
- Marine mammal monitoring
- Cabling within The Wash and North Norfolk Coast SAC
- Inclusion of fishing in in-combination assessments; and
- Post-consent engagement.

2.14 A point by point response to TWT's Written Representation is documented below.

Response to The Wildlife Trusts (TWT)

Interested Party's Written Representation	Applicant's Response
Covering Letter	
The Wildlife Trusts (TWT) welcome this opportunity to comment further on the Hornsea Three Offshore Wind Farm application. Alongside this Written Representation, we have developed a Statement of Common Ground with the applicant. TWT, with more than 800,000 members are the largest UK voluntary organisation dedicated to conserving the full range of the UK's habitats and species, whether they be in the countryside, in cities or at sea. TWT manages 2,300 reserves covering more than 90,000 hectares of land including coastal reserves; TWT stand up for wildlife, inspire people about the natural world and foster sustainable living. TWT support the UK's current targets to reduce greenhouse gas emissions and the government's ambitions to tackle climate change and increase the proportion of overall energy generated from alternative sources. However, we do not believe that this should be at the expense of the environment and firmly believe that it needs to be 'right technology, right place'. TWT has engaged with the applicant throughout the evidence plan process with representation on the Marine Mammals Expert Working Group, the Marine Processes, Benthic Ecology and Fish Ecology Expert Working Group and MCZ workshop meetings. As a summary, our concerns regarding Hornsea Project Three	The Applicant has responded to each of the summary points raised here by TWT in the subsequent rows.

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Offshore Wind Farm are as follows: • **Cumulative impacts from underwater noise disturbance on harbour porpoise**: The number of harbour porpoise impacted upon by underwater noise disturbance for this project are very high and we do not agree with the assessment conclusions. We are concerned about both the spatial and temporal impacts. Further commitment to mitigation for underwater noise disturbance impacts are required to meet Article 12 of the Habitats Directive. • **Impacts on the Southern North Sea SCI**: TWT does not agree with the SNCB proposed approach to underwater noise management and therefore cannot agree with the results of the assessment, especially for in-combination impacts. We are pleased that the applicant has committed to develop an in-principle Site Integrity Plan to ensure that mitigation will be delivered. However, this document requires more detail. • **Marine mammal monitoring**: TWT advocates a strategic approach to marine mammal monitoring and is pleased that the applicant is supportive of this approach. However, a mechanism to deliver this is lacking. TWT advocates the introduction of a conditioned underwater noise levy. • **Cabling within The Wash and North Norfolk Coast SAC**: Cable burial difficulties for other offshore wind farms within the SAC have increased our concerns regarding cabling within this area. Further information is required before no adverse effect on site integrity can be concluded. • **Inclusion of fishing in in-combination assessments:** Fishing has not been included in in-combination assessments. Fishing is a licenced activity that can have an impact on the marine environment. To meet Article 6(3) of the Habitats Directive, fishing must be included in the in-combination assessments. • **Post-consent engagement with the applicant:** TWT is in ongoing discussions with the applicant on post-consent engagement. TWT has built a good relationship with the applicant during the evidence plan process and wish for this to continue post-consent. However, based on the currently level of proposed engagement by the applicant, we are concerned that post-consent engagement with TWT will not be adequate. We have included detailed comments on the above points in appendix A. Thank you for taking our comments into consideration. We are happy to provide more details if required.	
Appendix A **1. Underwater noise impacts: EIA assessment conclusions for harbour porpoise and disturbance impacts** 1.1. TWT has serious concerns regarding the cumulative effect of underwater noise disturbance, particularly on harbour porpoise. Harbour porpoise are a European Protected Species (EPS) which are	With regard to 1.1: The Applicant notes TWT's concerns and has responded in detail to matters relating to cumulative effects raised by TWT in Appendix B of the SoCG (as submitted at Deadline I) between both parties and has provided further evidence on the precaution built into these assessments in Appendix 14 of its Deadline I submission. The Applicant is

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afforded strict protection under Article 12 of the Habitats Directive, transposed into UK law by The Conservation of Offshore Marine Habitats and Species Regulations 2017. The Regulations prohibit the deliberate capture, injury, killing or disturbance of EPS. TWT suggests that due to the strict protect afforded to harbour porpoise and the cumulative impact assessment results, further mitigation for disturbance is required.	confident that no long term significant cumulative disturbance effects will occur on the population at the Management Unit level (as detailed in Section 4.12 of Volume 2, Chapter 4 – Marine Mammals, (APP-064), and therefore, no effect on the Favourable Conservation Status of the population is anticipated. Notwithstanding this conclusion, it is material to note that the threshold approach applied to the SNS SCI assessment within the RIAA, and the subsequent mitigation commitment made within the DCO by the Applicant (now in the form of a SIP) is relevant to TWT's concerns regarding the EIA conclusions. In the unlikely event that a significant number of noisy activities overlap with the construction period of Hornsea Three to the extent that thresholds could be breached, and Hornsea Three's final design comprises a foundation installation option that contributes to that in-combination effect, then it will have to apply appropriate mitigation to reduce its contribution to that effect to acceptable levels (as part of the SIP process) before it can be approved to proceed. Therefore, and notwithstanding the Applicant's conclusions within the CEA (which are still considered valid), this HRA based control measure means the concerns raised by TWT about cumulative level disturbance, could not arise even if the Applicant were wrong in its CEA conclusions.
1.2. Harbour porpoise are extremely vulnerable to disturbance impacts. Like many cetaceans, they use echolocation to detect their prey, predators and mates. Loud noise impacts can interrupt the echolocation ability of a porpoise and also cause displacement from potential important feeding areas. There is evidence to suggest that harbour porpoise feed continuously day and night to meet their energetic demands, eating thousands of fish per day. Noise disturbance, especially due to cumulative impacts, can lead to little margin for compensation when foraging and could have severe fitness consequences at an individual or population level1.	The Applicant disagrees with this interpretation of the available scientific literature on the vulnerability of harbour porpoise and the potential for individual and population effects. There is evidence to suggest that noise disturbance can cause displacement from potentially important feeding areas but there is also evidence that porpoises return to these areas in breaks between piling events and return once piling has ceased (e.g. Scheidat et al. 2011, Brandt et al. 2018, Nabe-Nielsen et al. 2018)The Applicant acknowledges that as income breeders, harbour porpoises do need to feed regularly to maintain energy balance, particularly when lactating and provisioning a calf. However, the interpretation of the tagging studies of Wisniewska et al. (2016) that harbour porpoises feed continuously day and night and are therefore vulnerable to disturbance, is misleading. The majority of tagged porpoises foraged more often during the night compared to the day and the conclusions with respect to amount of food intake depends heavily on untested assumptions with respect to the success of foraging attempts and the species, size and energetic content of the prey consumed. All disturbance models assume that porpoises do not feed while experiencing piling noise but there is also evidence to suggest that porpoises can compensate by increasing food intake following periods of disturbance. Recent feeding studies by Kastelein (papers in review) indicate that porpoises have a large extensible forestomach and were capable of ingesting up to 98% of their daily energetic requirements in an hour and be capable of feeding again two hours later. Other captive studies have monitored the energy intake of animals and indicated that intake can be significant, up to approximately 3.5 times the daily energy requirements (Kastelein et al. 1997, Lockyer et al. 2003, Lockyer et al. 2003

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	and Kastelein et al. 2018). Calculations of energy intake of the tagged porpoises in the Wisniewska study indicate that tagged individuals were able to ingest a significant proportion of and even exceed their energy requirements foraging (Booth, in review). An alternative explanation of the high foraging rates in the tagged animals is that the observed foraging was indicative of compensatory behaviour on release after a period of capture in a net. In addition all studies of porpoise diet in the North and Baltic Seas indicate they ingest a wide range of prey types, typical of a generalist feeder. This suggests that porpoises may be capable of finding alternate prey and in combination with compensatory foraging behaviour, are tolerant of disturbance from piling noise. References cited above: Brandt, M. J., A.-C. Dragon, A. Diederichs, M. A. Bellmann, V. Wahl, W. Piper, J. Nabe-Nielsen, and G. Nehls. 2018. Disturbance of harbour porpoises during construction of the first seven offshore wind farms in Germany. Marine Ecology Progress Series 596:213-232. Kastelein, R. A., J. Hardeman, and H. Boer. 1997. Food consumption and body weight of harbour porpoises (Phocoena phocoena). The biology of harbour porpoise:217-233. Kastelein, R. A., L. Helder-Hoek, and N. Jennings. 2018. Seasonal Changes in Food Consumption, Respiration Rate, and Body Condition of a Male Harbor Porpoise (Phocoena phocoena). Aquatic Mammals 44:76-91. Lockyer, C., G. Desportes, K. Hansen, S. Labberté, and U. Siebert. 2003. Monitoring growth and energy utilisation of the harbour porpoise (Phocoena phocoena) in human care. NAMMCO Scientific Publications 5:107-120. Nabe-Nielsen, J., F. van Beest, V. Grimm, R. Sibly, J. Teilmann, and P. M. Thompson. 2018. Predicting the impacts of anthropogenic disturbances on marine populations. Conservation Letters. Scheidat, M., J. Tougaard, S. Brasseur, J. Carstensen, T. van Polanen Petel, J. Teilmann, and P. Reijnders. 2011. Harbour porpoises (Phocoena phocoena) and wind farms: a case study in the Dutch North Sea. Environmental Research Letters 6:1-10. Wisniewska, D. M., M. Johnson, J. Teilmann, L. Rojano-Doñate, J. Shearer, S. Sveegaard, L. A. Miller, U. Siebert, and P. T. Madsen. 2016. Ultra-high foraging rates of harbor porpoises make them vulnerable to anthropogenic disturbance. Current Biology 26:1441-1446.
1.3. With regards to the cumulative impact assessment, for just Tier 1 projects, it is predicted that between 12,158 and 18,290 harbour porpoise could be affected by piling operations. We do not consider this an insignificant number. When the tier 1 and 2 cumulative impacts figures are collated for harbour porpoise, the number of animals becomes considerable – between 22,546 and 36,905 individuals. In addition, the Hornsea 3 schedule covers a period of 12 breeding cycles for harbour porpoise. The applicant has	As detailed in Appendix B of the SoCG between the Applicant and TWT (as submitted at Deadline I) the Applicant maintains that looking at the summed numbers of individuals that could theoretically be potentially affected across all projects in the CEA, is not reflective of a realistic magnitude of effect given that the projects will have varying degrees of overlap in both space and time. Although the whole CEA schedule presented in the ES chapter covers a total of 12 years, there will not be

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highlighted that the piling works will cover 3 breeding cycles but the cumulative impacts with other projects and other disturbing activities could have longer temporal effects. Porpoise have an average life expectancy of 20 years in UK waters (Learmonth *et al* (20142) and we do not understand the implications of the predicted level of noise disturbance on porpoise breeding success and long-term population impacts.	disturbance across this whole period. Furthermore the Applicant would highlight that all attempts to date to quantify and predict the population consequences of offshore wind farm construction on harbour porpoise using empirical data, formal expert elicitation procedures and various modelling approaches have concluded that significant population level effects from the currently envisaged scale of OWF construction in the North Sea are unlikely. For example, a recent modelling exercise by Jacob Nabe-Nielsen of the University of Aarhus, using an individual based modelling approach built on sound physiological and energetic principles, even making very extreme assumptions about individual responses (well beyond anything supported by current empirical data), failed to elicit a lasting effect on the North Sea harbour porpoise population (Nabe-Nielsen et al., 2018). Given current levels of bycatch in the North Sea it is highly unlikely that the population is food limited and therefore the capacity for the population to respond to local disturbances, even over a large scale, is likely to be high. Nabe-Nielsen, J., F. van Beest, V. Grimm, R. Sibly, J. Teilmann, and P. M. Thompson. 2018. Predicting the impacts of anthropogenic disturbances on marine populations. Conservation Letters. https://doi.org/10.1111/conl.12563
1.4. We do not believe it is appropriate to use the Booth *et al* (2017)3 paper to determine the significance of cumulative underwater noise impacts on harbour porpoise. Although we see the benefits of using iPCoD or other models in the future to understand population impacts on marine mammals, the model version used in the Booth et al (2017) paper heavily relies on expert opinion rather than empirical data. Therefore, the benefits of the model in this format are useful as illustrate purposes only rather than as an assessment tool.	Paragraph 1.4; On the specific point relating to the Booth et al work, a recently updated version of the iPCoD model, developed as a result of an expert panel meeting in June 2018 and updated in light of all available empirical information on harbour porpoise energetics, diet and responses to piling noise, has been tested and found to predict a similar or lower magnitude of effect for an equivalent scenario[1]. As such, the Applicant maintains that the comparison to the outcomes presented in the Booth et al (2017) paper remain valid and no long term population level impact is expected. [1] A report of the expert workshop detailing the revised model functions is currently under review by BEIS.
1.5. Based upon the number of animals impacted, we do not agree that the underwater noise disturbance cumulative impact result for harbour porpoise is minor adverse significance for tier 1 projects. The assessment suggests that for tier 1 and 2 projects the impacts are "moderate (in terms of overall numbers of animals affected and the duration of effect) but of minor adverse significance in the long term". We neither agree with this conclusion as we do not understand the long-term impacts of disturbance on harbour porpoise populations. As a result, we do not believe the embedded mitigation measures are appropriate.	With regard to point 1.5: Based on the above responses, the Applicant maintains that the disturbance cumulative impact on harbour porpoises is predicted to be of minor adverse significance.
1.6. It is highlighted in table 4.19 of the Marine Mammals chapter that the Marine Mammal Mitigation Protocol (MMMP) will mitigate the risk of physical or permanent auditory injury to marine mammals. Mitigation proposed in the MMMP is therefore not appropriate to reduce the impacts of disturbance caused by underwater noise. As mentioned previously, harbour porpoise are listed as an EPS as part of the Habitats Directive which requires the maintenance of the Favourable Conservation Status (FCS) of the species. When considering the cumulative effect of tier 1, 2 and 3	See above comments for the Applicants position on the level of overall cumulative impact . The Applicant maintains that this will not have a detrimental effect on the Favourable Conservation Status of the population.

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projects, potentially over 40,000 harbour porpoise will affected by cumulative underwater noise disturbance and we cannot be certain that this will not impact upon the FCS of the population. Even for tier 1 impacts, there is not enough evidence to support that there will not be a population level impact. Therefore, to meet article 12 of the Habitats Directive, a precautionary approach is required and a commitment further mitigation to reduce underwater noise disturbance impacts is essential.	
1.7. TWT is pleased that some assessment of UXO impacts has been considered. However, based on the updated NOAA guidance TWT have concerns regarding the alone and cumulative effects of underwater noise impacts from UXO clearance. Based on the outputs of the new NOAA guidance, TWT expect industry to collaborate to develop effective mitigation to reduce underwater noise impacts from UXO clearance. TWT request to be named as a consultee on the UXO MMMP.	The Applicant has provided a detailed response on the approach to the assessment of UXO impacts in Table 3.2 and Appendix A of the All other Matters SoCG with Natural England. The Applicant has also indicated in Appendix B of the SoCG with TWT and NWT that it will not be advocating the inclusion of named parties that should be consulted as part of the approval of individual plans. The Applicant noted within this Deadline I submission that it would not object if the MMO were minded to consult TWT on the content of the MMMP and is conscious of the MMO's response on this matter as submitted within their Written Representation.
1.8. With a number of offshore wind farms developers in the evidence plan process or entering planning applications, the scale of offshore wind farm development is beyond anything we have seen. Cumulative assessments are difficult to undertake and therefore developers use different data and different approaches resulting in inconsistencies and results which are difficult to compare. Therefore, we advocate a strategic approach to the cumulative and in-combination effect of offshore wind farm development on marine mammals. However, in the absence of a strategic approach, we do not think the that the current list of projects adequately covers the potential cumulative and in-combination impacts. TWT suggest that Norfolk Boreas, East Anglia One North, East Anglia Two and Hornsea 4 are included in the assessment.	With regard to point 1.8: The Applicant has submitted an updated CEA taking into account material changes resulting from projects screened into the assessment since the original assessment (Appendix 16 to Hornsea Three Deadline I Submission: Applicant's Response to Ex.A Question Q1.15.3). Whilst the offshore wind farm projects highlighted by TWT are not included in the updated assessment provided by the Applicant at Deadline 1 (Appendix 16 to Hornsea Three Deadline I Submission: Applicant's Response to Ex.A Question Q1.15.3), the Applicant can confirm that they would fall into the Tier 3 assessment and given that no information is publicly available beyond the Scoping Reports, this would not facilitate meaningful consideration of them or change the existing conclusions. If quantified information (in the form of draft EIA material) becomes publicly available within the examination timeframe then the Applicant will update the assessments accordingly.
1.9. TWT recommends that the Heinänen and Skov (2015)4 metric should be used to assess cumulative impacts of shipping. The Heinänen and Skov report states that responses to the number of ships per year indicate markedly lower densities with increasing levels of traffic. A threshold level in terms of impact seems to be approximately 20,000 ships/year (approx. 80/day). The applicant has highlighted that this has not been possible due to a lack of appropriate detail on other projects. This again highlights the need for a strategic approach to cumulative and in-combination assessments.	The Applicant has no further comment on this point.
1.10. As harbour porpoise are an EPS species, fishing should also be included in in-combination assessments. We have provided more detail on this in section 5.	The Applicant has provided a detailed response on the issue of the inclusion of fishing in in-combination assessments in Appendix B of the SoCG with TWT and NWT. Further to this, the Applicant highlights that the predictive models of population level impact referred to in the CEA and above already include the effects of ongoing fishing and shipping activity in the

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	predictions of baseline population trajectories.
2. Impacts on the Southern North Sea SCI 2.1. Proposed SNCB advice on underwater noise management 2.1.1. TWT do not agree with the proposed SNCB advice on underwater noise management5. The approach is based upon the carrying capacity of the Southern North Sea SCI. We have no understanding as to what the carrying capacity of harbour porpoise is in the Southern North Sea SCI. Therefore, there is weak scientific information underpinning the proposed area-based approach to management. Our views are further outlined in a draft joint NGO document which can be found in appendix B. 2.1.2. The SNCB underwater noise management proposal was discussed at a stakeholder workshop in February 2017 and both developers and regulators highlighted the difficulties in delivering the proposed approach. For example, to ensure that the area-based thresholds would not be breached, a piling schedule would be required for offshore wind farm development. Discussions on how this would be implemented are still ongoing and to our knowledge, no resolution has been found**.** The lack of progress on underwater noise management not only puts the conservation status of the Southern North Sea SCI at risk, but also future offshore wind farm development, especially due to the in-combination effects of underwater noise. 2.1.3. TWT are currently advocating the underwater management approach used in Germany6. The approach sets noise limits at which piling activity must not exceed. These noise limits are based upon scientific evidence. Germany has stricter noise protection outside their SACs to what is being proposed within UK harbour porpoise SACs. Noise limits are also used in the Netherlands and Belgium. 2.1.4. TWT has expressed this opinion widely with industry, SNCBs, regulators and government. Since the SNCB proposal was presented in February 2017, a number of discussions have taken place in silos, and as a result, underwater noise management within the Southern North Sea SCI has not progressed.	With regard to how underwater noise is managed within the SCI and associated HRA process, the Applicant confirms that it has undertaken the assessments in line with current SNCB advice as detailed within its response to point 1 of TWT's Relevant Representation (RR-047) as presented at 1.2.47 of the Applicants Comments on Relevant Representations as submitted at Deadline I.
2.2. Assessment results 2.2.1. As a result of our concerns highlighted in 2.1, we cannot agree with the in-combination assessment conclusions of no adverse effect on the Southern North Sea SCI. 2.2.2. When considering the in-combination assessment results, there is evidence that the proposed temporal and spatial thresholds will be exceeded if Tier 2 and 3 projects go ahead. The assessment cannot conclude beyond reasonable scientific doubt that there will not be an in-combination impact on the site integrity of the SNS SCI. Therefore, mitigation is required. 2.2.3. We highlight that fishing has not been included in the in-combination assessment. Please see section 5 for more details.	With respect to the outstanding points of concern in relation to the Southern North Sea cSAC/SCI HRA assessment in combination with other plans or projects, the Applicant maintains that HRA in-combination conclusions are as robust as possible at this juncture. The commitment to a Site Integrity Plan in condition 13(5) of the generation assets DML and 14(5) of the transmission assets DML (Schedule 11 and 12 respectively of the draft DCO (Version 1, submitted for Deadline I)) will ensure that prior to the commence of construction the undertaker has accurately (based on final scheme design and certainty with regard to overlapping projects) represented the risk to site integrity and applied any appropriate mitigation to reduce effects to acceptable levels if assessment outputs indicate the need for such measures to be applied. the Applicant considers that appropriate detail on the potential mitigation measures has been provided in the current draft document (as presented at Appendix 15 to the Applicant's response to Deadline I). The level of detail is commensurate

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2.2.4. We are pleased that the applicant has committed to produce an In-Principle Site Integrity Plan (SIP). However, in its current form the SIP lacks detail and therefore TWT does not consider it adequate to ensure no adverse effect on the SNS SCI beyond reasonable scientific doubt. 2.2.5. To achieve this, more detail should be provided on the effectiveness of the proposed mitigation as outlined in the SIP. This should include referenced examples of how the implementation of mitigation will reduce underwater noise disturbance impacts within the SNS SCI. Noise modelling should also be undertaken to demonstrate the degree of noise reduction which could be achieved through mitigation.	with other "in-principle / draft" SIP documents drafted at this juncture of the planning process. It is noted that further detail on any mitigation measure would be presented within the final SIP to demonstrate precisely how it would be effective in reducing a specific effect to specific levels, at that juncture, if it was concluded that further mitigation was required. With regard to TWT's comments on the conclusions of the in-combination assessment for the SNS SCI within the RIAA, the Applicant has responded in detail on these matters at Appendix B (under "The Applicant's response to Supporting Text #3") of the SoCG between the Applicant and TWT (as submitted at Deadline I). With regard to TWT's comments on the inclusion of fishing within the in-combination assessment for the SNS SCI within the RIAA, the Applicant has responded in detail on these matters at Appendix B (under "The Applicant's response to Supporting Text #1") of the SoCG between the Applicant and TWT (as submitted at Deadline I).
2.2.6. We are pleased that the applicant has named TWT on the SIP but we wish to engage with the developer in more detail post-consent than what is proposed. We also wish to be named on the MMMP for piling and UXO clearance. We are in ongoing discussions with the applicant. Please see section 6 for further details.	With regard to the naming of TWT on the MMMP the Applicant cross refers TWT to the statements made above and confirms that the MMO has stated within its Written Representation that it intends to consult with TWT on the content of these documents
3. Marine Mammal Monitoring 3.1. The applicant has assessed the impact of disturbance using a dose response curve. We are content with this approach but on the basis the monitoring will be undertaken to verify the predictions of the dose response curve. 3.2. TWT recommend that strategic approach to monitoring is required, and we are pleased to see that the applicant is supportive of this approach. Pre, during and post construction monitoring is required of both noise levels and harbour porpoise activity to understand the impact of underwater noise on harbour porpoise as an EPS and on the Southern North Sea SCI. TWT believe this should be delivered through an offshore wind underwater noise levy (see section 3.4). 3.3. TWT are concerned that if a strategic approach is not agreed, then monitoring will not be adequate. For example, noise monitoring will only be made for the first 4 piles installed and this is only to verify the noise modelling predictions. This does not provide any information on the noise levels per day or during the course of the construction programme, which is essential for understanding the impacts of underwater noise on harbour porpoise as an EPS and the Southern North Sea SCI. 3.4. TWT proposal on an underwater noise offshore wind farm levy 3.4.1. Based on the scale and ambition of the offshore wind	The Applicant's position on monitoring was provided in table 3.2 of the SoCG with TWT as submitted at Deadline I. Furthermore, the Applicant has submitted an In Principle Monitoring Plan (Appendix 2 to the Deadline I Submission) which contains more detail about the proposed approach to marine mammal monitoring. Further, the Applicant has reviewed and amended the proposed monitoring conditions in Schedule 11 and Schedule 12 of the draft DCO (version 1, submitted for Deadline 1). With respect to the specific objectives of the monitoring, monitoring is also proposed to reduce the uncertainty relating to the population consequences of disturbance, although the exact nature of such monitoring is yet to be defined. In addition to noise monitoring at the first four piles of each discrete foundation types, the IPMP includes a commitment for further monitoring on the duration of piling activity during the installation of the turbine and substation foundations. The intention of this is to enable future assessments to enhance the confidence in how piling durations are characterised within the design envelope, with the aim of reducing the potential for overly precautionary assumptions being applied to assessments. The Applicant has provided comments about the offshore wind underwater noise levy under point 6 of TWT's Relevant Representation (RR-047) as presented at 1.2.47 of the Applicants Comments on Relevant Representations as submitted at Deadline I.

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industry, there is potential for tens of thousands of harbour porpoise to be impacted by underwater noise disturbance. Therefore, a mechanism to deliver strategic monitoring and mitigation to understand and manage in-combination underwater disturbance impacts is urgently required. 3.4.2. TWT proposes that developers should be conditioned to pay into an underwater noise levy which would fund strategic monitoring and mitigation along with the establishment of a group to coordinate underwater noise management. TWT has produced a draft working document on the underwater noise levy which is included in appendix C.	
4. Cabling impacts 4.1. TWT is pleased the applicant has made efforts to minimise impacts on Cromer Shoal Chalk Beds MCZ through the provision of an alternative cabling route. However, our initial correspondence with the applicant in January 2018 outlined that there were increased impacts on The Wash and North Norfolk Coast SAC and we would expect a thorough Habitats Regulations Assessment to be undertaken. 4.2. TWT has increased concerns regarding cabling within The Wash and North Norfolk Coast SAC based on cable burial difficulties we have seen within the SAC. We have recently responded to a marine licence application for further remedial cable burial works and cable protection within the SAC for Race Bank Offshore Wind Farm, which we have objected to (MLA/2018/00385). 4.3. At a first glance, the cabling route through The Wash and North Norfolk Coast SAC may seem like a better alternative than going through chalk reef within the MCZ; if chalk is impacted through cabling works it could be lost in perpetuity whereas subtidal sandbank features may have the potential to recover. However, on closer inspection of the geophysical data available of the cabling route area within The Wash and North Norfolk Coast SAC, it appears that sediment may be providing a veneer over rock, which may result in difficulties in burial. 4.4. The applicant has committed to no more than 10% cable protection within the SAC, which is based on experience from previous projects. However, the amount of cable protection for Race Bank Offshore Wind farm appears to be an anomaly and much higher than other projects. We have seen significant problems with cable burial within the Wash, which has the potential to cause repeated disturbance and the need for increased rock protection. We are concerned that we will see similar difficulties in cable burial for Hornsea Three within The Wash and North Norfolk Coast SAC which could result in an impact on the conservation status of the site. 4.5. Further information is required to give certainty that there will be no adverse effect on The Wash and North Norfolk Coast SAC.	The Applicant acknowledges the comments made with respect to avoiding impacts on Subtidal Chalk features of the Cromer Shoal Chalk Beds MCZ and notes that a robust assessment of the effects of cable installation, operation and maintenance has been presented within the Report to Inform Appropriate Assessment (APP-051). With respect to the areas of subcropping rock within The Wash and North Norfolk Coast SAC, the Applicant refers the Ex.A to the Applicant's Deadline I response to the Ex.A question Q1.2.4 (REP1-122) where it is highlighted that, for cable burial, a range of methodologies and tools have been considered, including pre-trenching and rock cutting which can be used to install cables in stiff clays and soft rock. The Applicant therefore does not agree that there is a higher likelihood of difficulties in cable burial in the areas of subcropping rock. With respect to the assumption that 10% of offshore export cables within The Wash and North Norfolk Coast SAC may require cable protection, the Applicant has provided evidence to support this assumption, presented at Appendix 6 to the Applicant's response to Deadline I (REP1-138). In response to paragraph 4.4 of TWT's Written Representation, the Applicant notes that the proportion of Race Bank offshore export cables requiring cable protection is still well below 10% of the overall cable length (i.e. 6.3% of offshore export cable length required rock protection) and that the cable protection requirements outlined in the Cable Protection Clarification Note (REP1-138) include the post-consent cable protection marine licence applications. Whilst the Applicant notes TWT's comments on the level of cable protection for Race Bank it would also note that the Lincs offshore wind farm offshore export cables (which also pass through the Wash) have, to date, not required any cable protection measures. In response to the requests for clarification in section 4.5, the Applicant provides the following response: 4.5.1: Certainty that the cable can be buried in the nearshore area: The Applicant's response to the Ex.A Q1.2.4, presented at Deadline I (REP1-122), provides detail around the types of equipment which can be used to bury cables in chalk/stiff clay; 4.5.2: Differences between The Wash and the North Norfolk

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This includes: 4.5.1. Certainty that the cable can be buried if a sediment veneer over rock is present. The applicant has informed us that they are confident that they will be able to cut into rock in order to bury the cables. Further information on the confidence in cutting and burial techniques is required, including information from similar activities for other projects. In addition, how much geophysical information of the route within the SAC is available to determine how much sediment veneer over rock there may be within the cable corridor? This information would be useful in providing confidence in the proposed maximum 10% cable protection required within the SAC. 4.5.2. Due to the issues we have seen with cable burial within the Wash, we would like to understand what the likelihood is of similar problems occurring along the Hornsea Three cable route along the North Norfolk Coast. Due to the dynamics within the Wash, sediment does not remain in situ which has resulted in cable exposure and the requirement for cable protection. Does the applicant expect similar coastal processes within the Hornsea Three cable route which may result in cables becoming exposed and the requirement further cable protection? We are aware that rocky outcrops along the North Norfolk coast do become exposed due to the shifting sediment. 4.5.3. It would be useful if the applicant could provide examples of cable burial success from other cable routes within the area e.g. Dudgeon and Sheringham Offshore Wind Farms. We would like to understand if the cables from these offshore wind farms have become exposed and how much cable protection was used. 4.6. The applicant is proposing to use sensitive cable protection within The Wash and North Norfolk Coast SAC. However, we understand that this is likely to be granite which will result in the loss of protected sediment habitat and the introduction of a new hard substrate. The applicant has assessed that 0.004% of the protected subtidal sandbank within The Wash and North Norfolk Coast SAC will be lost through cable protection. When considering the scale of the impact, the judgement in the *Sweetman* case should be borne in mind. In the *Sweetman* case, it was determined that the removal of just 0.53% of the limestone pavement feature (0.006% of the whole SAC) constituted an adverse effect on site integrity. There are numerous other examples where habitat loss of less than 1% has been shown to constitute an adverse effect on the integrity of a European site7. 4.7. One of our key concerns in relation to the introduction of rock protection within the SAC is that in-combination effects with other activities have not been taken into account. Other activities which need to be considered include: • Race Bank Offshore Wind Farm cabling works – existing infrastructure and new works. • Linc Offshore Wind Farm cabling routes – existing	Coast: The Wash and the North Norfolk coast can both be generally characterised as dynamic, sandy sedimentary environments, with both having actively migrating bedforms. Changes in the local seabed level mainly occur due to the migration of sedimentary features (e.g. the crests, flanks and troughs of migrating bedforms, or the banks, flanks and base of migrating channel features). In The Wash, actively migrating channels may cause additional short term local variation (lowering) of the seabed level. The future migration of such channel features is difficult to predict with certainty. This contrasts with the North Norfolk coast, where the intertidal grades into a fairly uniform subtidal area, without such large migrating channels and is therefore more predictable in this respect, reducing the risk of cable exposure. It should be additionally noted, however, that the cable specification and installation plan (and associated cable laying plan), to be produced prior to construction (as required by Schedule 11, Condition 13(1)(h) (generation assets DML) and Schedule 12, Condition 14(1)(h) (transmission assets DML) of the DCO Version 1, submitted for Deadline 1), would serve to identify the most appropriate burial depths for offshore export cables. This would take into account variability in seabed level, to ensure the required minimum thickness of sediment cover, to ensure adequate protection of the cable (i.e. protection offered by the natural sediments) and reduce the risk of future cable exposure. 4.5.3: Regarding cable burial success at Dudgeon and Sheringham offshore wind farm export cables,the Applicant does not have access to the latest project information (e.g. asset integrity) on these offshore export cables and therefore is unable to confirm the presence of cable protection measures along the entire Sheringham Shoal and Dudgeon export cable corridors. The Applicant would note that The Wash and North Norfolk Coast SAC clarification note (Appendix 5 to the Applicant's response to Deadline I; REP1-140) presents geophysical data over sections of these offshore export cables, where Hornsea Three geophysical datasets overlapped with these. These data showed no cable protection measures placed on the two Sheringham Shoal export cables across a 6.8 km stretch of offshore export cables where geophysical data were collected (total length of Sheringham Shoal export cable corridor within the MCZ is 10.4 km). The Hornsea Three geophysical data only coincided with approximately 1.5 km of the Dudgeon export cables (total length of Dudgeon export cable corridor within the MCZ is 11 km) however, the Applicant understands that 70 m of cable protection (in the form of rock bags) have been deployed between the horizontal directional drilling (HDD) duct and the export cable trench, approximately 1.1 km from the shore. 4.6 In response to TWT's comments on the Sweetman case, the Applicant does not agree with the conclusions TWT have drawn from the judgment. First. the subtidal sandbank feature of The Wash and North Norfolk Coast SAC is not a priority

Interested Party's Written Representation	Applicant's Response
infrastructure. • Commercial fishing (please see section 5). 4.8. We have concerns regarding the long-term sustainable use of rock protection for offshore wind farms. There are clear aspirations for future offshore wind farm development, including possible extensions and future leasing. We have serious concerns regarding the cumulative effect of rock protection in soft sediment environments and a strategic approach to cable routes is required to ensure no adverse effect of protected sites. Consideration of cable protection on the wider marine environment beyond protected sites is also required.	habitat as was the case in Sweetman with the limestone pavement feature. The definition of priority natural habitat notes that they are habitats "in danger of disappearance". On that basis, it is unsurprising that the ECJ held that permanent destruction of part of the habitat adversely affected the integrity of the site. Second, it was specifically highlighted in Sweetman, that it may be possible to demonstrate that whilst a project may have an impact, it will not be an appreciable impact on the site. The Advocate General described such effects as "de minimis". TWT has failed to acknowledge this and taken an extreme position which is not supported by case law. Alternatively, if significant effects cannot be ruled out, it may be possible via appropriate assessment to demonstrate beyond reasonable scientific doubt that whilst there is an effect on such habitats, the conservation status of the site remains favourable. The 0.004% corresponds to the maximum design scenario of 10% of cables within the site requiring cable protection. The Applicant would highlight that, based on the Applicant's experience at other offshore wind farms, as outlined in the Cable Protection Clarification Note (REP1-138), the percentage extent is likely to be much less than this. The Applicant notes that TWT's comments regarding the recent Race Bank offshore wind farm marine licence applications, although the Applicant would highlight that the marine licence application documents could not be available at the time of the DCO submission in May 2018 and therefore were not considered in the cumulative effects assessment (CEA) or in-combination assessment. The Applicant is willing to provide an update to the in-combination assessment for The Wash and North Norfolk Coast SAC, including these marine licence applications. This will be provided at Deadline III. The Lincs offshore wind farm was considered part of the baseline and therefore was not considered in the CEA. The Applicant notes the comments from TWT with regard to the use of rock protection for offshore wind farms. The Applicant has worked with TWT and other stakeholders through the pre-application and pre-examination phases of the project to try to minimise effects of cable installation on designated sites and their features and the wider marine environment.
5. The inclusion of fishing in in-combination assessments 5.1. Fishing has not been included in the marine mammals or benthic ecology in-combination assessment. Fishing is a licensable activity that has the potential to have an adverse impact on the marine environment. This is supported in the leading case C-127/02 ***Waddenzee*** [2004] ECR I-7405, the CJEU held at para. 6 5.2. Current Defra policy8 is to ensure that all existing and potential fishing operations are managed in line with Article 6 of the Habitats Directive. The current, risk-based, 'revised approach' to *"The act that the activity has been carried on periodically for several years on the site concerned and that a licence has to be obtained for it every year, each new issuance of which requires an*	To avoid repetition, the Applicant refers to its response to TWT's reply to question 1.2.107.

Interested Party's Written Representation	Applicant's Response
assessment both of the possibility of carrying on that activity and the site where it may be carried on, does not itself constitute an obstacle to considering it, at the time of each application, as a distinct plan or project within the meaning of the Habitats Directive" This caselaw demonstrates that fishing is considered a plan or a project and therefore not part of the baseline. Fishing should be included in all in-combination assessments where there is an interaction with a designated feature. In-combination impacts must be taken into account in the same way as if they were removed and the total impact of all human activities considered. 5.2. Current Defra policy8 is to ensure that all existing and potential fishing operations are managed in line with Article 6 of the Habitats Directive. The current, risk-based, 'revised approach' to fisheries management in European Marine Sites is a compromise agreed by all to prevent the closure of fisheries during assessment. This approach further supports that fishing is considered a plan or a project and therefore must be included in the in-combination assessment in line with Article 6(3) of the Habitats Directive. 5.3. A precedent was set for the inclusion of fishing in in-combination assessments when TWT began Judicial Review proceedings against the Department for Energy and Climate Change (DECC) in August 2015 against the approval of Dogger Bank Offshore Wind Farm Order due to the exclusion of fishing from the in-combination assessment as part of the HRA. TWT withdrew the claim due to assurances given by the government regarding the management of fishing within Dogger Bank SAC. One of those assurances was that steps would be put in place to ensure that this scenario would not happen again and that Defra and DECC would work together to ensure fishing would be included in future offshore wind farm impact assessments. We have provided more detail regarding this in our response to the Examiner's questions for deadline 1.	
6. Post-consent engagement with the applicant 6.1. TWT is in ongoing discussion with the applicant with regards to post-consent engagement on the Hornsea Three project. 6.2. We are pleased that the applicant has named TWT in the SIP for the Southern North Sea SCI. However, currently this is to provide TWT with a copy of the document. We wish to formally engage with the applicant on the development of the plan post-consent. 6.3. There is a great deal of uncertainty at the time of consent on a) the design of the project, b) mitigation that will be effective and c) that there will be no adverse effect on site integrity of the Southern North Sea SCI. TWT aim to take a pragmatic approach to offshore wind farm development on the basis that further detail on impact and mitigation will be put in place once more information is available post-consent. Due to this, we wish to continue close working on this project post-consent.	The Applicant has made clear that it will continue to consult with TWT during the post consent phase. Furthermore, the Applicant cross refers TWT to the statements made above and confirms that the MMO has stated within its Written Representation that it intends to consult with TWT on the content of these documents.

Interested Party's Written Representation	Applicant's Response
6.4. With regards to the applicant's commitment to engagement with TWT in the development of the SIP, the applicant is only promising a copy of the document; information providing rather than engagement. This is not adequate and has the potential to cause problems for the applicant closer to construction. If our comments are only taken into account when the MMO consults months before construction, this may be too late for our concerns to be resolved. We aim to work closely with developers to ensure that the issues we raise can be resolved at an early stage and this is evidenced through the evidence plan process. We propose that, due to the uncertainties at the time of consent, the Marine Mammal Expert Working Group continues into the post-consent stage to support the applicant in the development of the SIP and other marine mammal mitigation and monitoring plans. Those involved in the evidence plan process have a breadth of experience across a range of offshore wind farm projects which would benefit the applicant, and ensure a more consistent and strategic approach to the management of the Southern North Sea SCI. 6.5. TWT also wish to engage with the applicant post-consent on the piling and UXO clearance MMMP and the marine mammal monitoring plan.	
Draft: The Wildlife Trusts, WWF, Whale and Dolphin Conservation and ClientEarth current views on underwater noise management within mobile species marine protected areas (MPAs) **October 2017**	This note covers strategic issues relating to the current regulatory approach and thus going beyond any individual offshore application or project and therefore are considered outwith the scope of this application. Where comments (within Relevant and Written Representations) have been raised by TWT (and indeed WDC) with regard to noise concerns relating specifically to the Hornsea Three application we have responded in detail accordingly.

Trinity House (REP1-024)

Summary

2.15 The key points raised by the Trinity House (TH) in their Written Representation relate to the following:

- Principle 8 of the array layout development principles and the 150m tolerance;
- Development consent conditions relating to aviation lighting; and
- The development consent condition relating to array layout design.

2.16 The Applicant has discussed these points with the Trinity House and progress made in these discussions prior to Deadline 1.

2.17 As TH's written representation at Deadline 1 focusses solely on responses to the ExA's First Written Questions, the Applicant has provided responses to the points raised by MCA in the Applicant's comments on responses to the ExA's Written Questions submitted by Interested Parties at Deadline 1.

Response to Trinity House

Interested Party's Written Representation	Applicant's Response
Q1.5.4 TH consider the stipulated 150m tolerance to be excessive. A development lane of 300 metres is somewhat unworkable for TH, when working towards agreeing a final layout with the developer and subsequently providing advice to the MMO. In order to assist safe marine navigation; including search and rescue craft, TH submit that a tolerance of 50m should apply.	The Applicant would refer the ExA to Q1.5.4 in the Applicant's comments on responses to the ExA's Written Questions submitted by Interested Parties at Deadline 1.
Q1.13.64 TH submits that Condition 6 should not reference MoD / Defence Infrastructure Organisation Safeguarding. We suggest that the standard wording, as set out below, is used instead: "The undertaker shall during the whole period from the commencement of construction of the authorised project to the completion of decommissioning exhibits such lights, marks, sounds, signals and other aids to navigation, and to take such other steps for the prevention of danger to navigation as Trinity House may from time to time direct"	The Applicant would refer the ExA to Q1.13.64 in the Applicant's comments on responses to the ExA's Written Questions submitted by Interested Parties at Deadline 1.
Q1.13.66 and Q1.13.67 We do not agree with Condition 11(1)(a). The final layout should be agreed by the MMO, who would consult with the MCA and TH accordingly. We suggest that the standard wording, as set out below, is therefore incorporated: " A plan to be agreed in writing with the MMO following appropriate consultation with Trinity House and the MCA setting out the proposed details of the authorised project, including the: a. Number, dimensions, specification, foundation type(s) and depth for each WTGs, offshore platforms, substations and meteorological masts; b. The grid coordinates of the centre point of the proposed location for each WTG, platform, substation and meteorological mast; c. Proposed layout of all cables; and d. Location and specification of all other aspects of the authorised project."	The Applicant would refer the ExA to Q1.13.66 and Q1.13.67 in the Applicant's comments on responses to the ExA's Written Questions submitted by Interested Parties at Deadline 1.

Sir Edward Evans-Lombe (REP1-038)

Summary

2.18 This response extends to the written representations submitted by Affected Persons as identified in the Book of Reference (APP-033).

Response to Sir Edward Evans-Lombe

Interested Party's Written Representation	Applicant's Response
Dear Sirs We write on behalf of our above named client to reserve the right to speak at the Open Floor hearings to be held on Monday 3 December 2018 and Monday 28 January 2019 in connection with the above project. We will confirm before the hearings who will be speaking on our clients behalf. The topic he wishes to address at the hearings is the alternative cable routes for the Orsted and Vattenfall projects as detailed in his representation of July 2018. If any further information is required, please contact Christopher Bond whose details are shown below. Could you please confirm receipt of this email. Yours faithfully Christopher Bond	Noted.

Simon Back (REP1-039, REP1-044 and REP1-241)

Summary

2.19 This response extends to the written representations submitted by Affected Persons as identified in the Book of Reference (APP-033).

Response to Simon Back

Interested Party's Written Representation	Applicant's Response
Introduction 1.1 This statement is our response, submitted on behalf of our client, Simon Back, to the underground cable route proposed as part of the Hornsea Project Three Offshore Wind Farm. Simon Back is the owner of land to the North East of Hethersett in Norfolk. 1.2 It is our belief that the proposed route for the underground cable, and the associated protective zone, will frustrate intended development of our client's property. The following gives background information on intended proposals for this part of our client's land.	The Applicant would refer to Annex 4 of the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-067 and the Applicant's Response to the ExA's First Written Question Q1.9.1 (REP1-122).
Background Existing Planning Context 2.1 The Joint Core Strategy (JCS) for Broadland, Norwich and South Norfolk (adopted in March 2011 with amendments adopted January 2014) is the key planning policy document for the Greater Norwich area. It forms part of the Local Plans for the districts of Broadland, Norwich and South Norfolk setting out the broad vision for the growth of the area and containing strategic policies for the period 2008 – 2026 2.2 The JCS identifies Hethersett as a strategic growth location, allocating at least 1,000 homes at Hethersett. As Hethersett is located within the Norwich Policy Area (NPA), it was also eligible to	The Applicant would refer to Annex 4 of the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-067 and the Applicant's Response to the ExA's First Written Question Q1.9.1 (REP1-122).

Interested Party's Written Representation	Applicant's Response
accommodate a share of the 1,800 'floating' numbers to be provided for through additional smaller sites within the South Norfolk NPA. These 'floating' numbers were not allocated to any particular location but spread across the NPA with all NPA settlements eligible for an increase in numbers above those allocated within the JCS 2.3 The South Norfolk Site Specific Allocations & Policies Document (adopted in October 2015) is part of the South Norfolk Local Plan. It designates areas of land for particular uses, most notably land to deliver housing for the period up to 2026. It allocates 1,354 new homes within Hethersett. These comprise the HET1 allocation for 1,196 homes to the north of Hethersett reflecting the outline planning permission granted in July 2013 (ref. 2011/1804/O), together with an allocation to the north-west that has already been constructed and largely completed by Avant Homes (151 homes permitted by planning permission ref. 2015/0635 2.4 It is of note that earlier drafts of the JCS proposed 4,000 new homes at Hethersett reflecting that it is a highly sustainable location and providing a clear indication of its ability to accommodate further growth beyond the current allocation sites.	
The Emerging Local Plan 2.5 Broadland District Council, Norwich City Council and South Norfolk Council are working together with Norfolk County Council to prepare the Greater Norwich Local Plan (GNLP), which will build on the established joint working arrangements for Greater Norwich, which have delivered the current JCS 2.6 The GNLP will include strategic planning policies to guide future development within Norwich, Broadland and South Norfolk for the period to 2036. The draft strategy (as set out in the Growth Options Document, January 2018) sets out a requirement for 42,887 new homes during the period from 2017 to 2036, of which 7,200 require new sites to be allocated. 2.7 In order to meet the housing requirement, the Growth Options Document sets out 6 strategic growth options, all of which would see additional growth directed to the South West NPA. 2.8 In this context Hethersett remains a highly sustainable location for further development within the emerging GNLP. It benefits from being in close proximity to Norwich with excellent road links from the A11 and A47, together with a park and ride site adjoining Hethersett at Thickthorn 2.9 Hethersett is also extremely well located in relation to the University of East Anglia (UEA), Norfolk and Norwich University Hospital (NNUH) and high-tech jobs at Norwich Research Park (NRP) with a new dedicated cycle link providing easy access from Hethersett 2.10 Hethersett benefits from a good range of local shops and services and the current development will see the provision of a new Primary School and expansion of the High School 2.11 Under the current emerging GNLP, the South West growth location, which includes Hethersett will need to accommodate up to 1,500 new homes for the period to 2036. The evidence base confirms that of the three settlements that make up the South West growth location, the other two (Cringleford and Little Melton) have limited scope for growth and therefore the majority of growth will be at	The Applicant would refer to Annex 4 to the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-067 and the Applicant's Response to the ExA's First Written Question Q1.9.1 (REP1-122).

Interested Party's Written Representation	Applicant's Response
Hethersett.	
Land at Hethersett 2.12 Land to the east and south-west of Hethersett are constrained for development by strategic gaps providing separation from Cringleford and Wymondham respectively. In addition, land to the south is also constrained by heritage considerations as well as the Cringleford strategic gap to the south-east. Accordingly, the land to the north and west of Hethersett being promoted for a consortium of landowners, of which our client is a member, as the logical location for development to take place to accommodate up to 1,500 homes. 2.13 The GNLP Site Proposals document published in January 2018 confirms the suitability of Hethersett for significant further growth. It emphasises that Hethersett is a major growth location and that it has a wide range of services with good access to the A47, N&N/NRP and Wymondham, extending the number of services accessible within a short distance. 2.14 The eminent sustainability of Hethersett combined with its existing constraints (south-west, south and south-east) mean that it is highly likely that land to the north and west of Hethersett will come forward for development, either through an allocation within the GNLP or through an early planning application on the basis of the 5 year housing land supply position within the NPA.	The Applicant would refer to Annex 4 to the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-067 and the Applicant's Response to the ExA's First Written Question Q1.9.1 (REP1-122).
Impact of the Proposed Cable Route for land north and west of Hethersett 2.16 The current Orsted cable route as shown on drawing no. 088/007 would result in approximately 9.8 hectares of residential development land being sterilised. At a typical density of 30 dwelling per hectare this would result in the loss of approximately 294 dwellings. 2.17 Drawing no. 0088/008 shows a proposed alternative cable route alignment that would avoid the proposed residential development land to the south of Little Melton Road and minimise the loss of residential development land to the east of Burnthouse Lane. The proposed alternative cable route, would result in 1.86 hectares of proposed residential development land being sterilised, with a resultant loss of 55 dwellings at an assumed density of 30 dwelling per hectare 2.18 The amendments to the proposed cable route as shown on drawing no. 0088/008 would therefore result in significantly less residential development land being sterilised than the currently proposed route.	Discussions are ongoing between the Applicant and the landowner regarding the potential loss of development and the Applicant is seeking to enter into a voluntary agreement that makes provision for future development. Should compulsory powers be used in the absence of a voluntary agreement there are provisions for dealing with development land in the Compensation Code. Further information is set out in paragraph 11.2 of the Statement of Reasons [APP-032]. The Applicant would refer to Annex 4 of the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which sets out the reasons why the alternative route proposed is not suitable.
Conclusion 3.1 It is our client's belief that the Orsted proposals fail to consider the development proposals that are intended for this part of Greater Norwich. We believe that the cable route will potentially sterilise important development areas and compromise proposed layouts. 3.2 Our client respectfully requests that the points contained in this statement are fully considered within the examination process. Our intention is to submit a full written representation in due course and, if required, request that we can make oral representations if necessary.	The Applicant has responded to the individual points of this representation above.

East Anglia Two Limited and East Anglia One North Limited (REP1-040)

Response to East Anglia Two Limited and East Anglia One North Limited

<table>
<tr><th>Interested Party's Written Representation</th><th>Applicant's Response</th></tr>
<tr><td>SPR (on behalf of the Project Companies) wishes to participate in the Examination of the Development Consent Order (DCO) application for Hornsea 3 Offshore Wind Farm. SPR is particularly interested in the cumulative and in-combination assessment presented within the application and the associated predicted cumulative effects.

SPR would like to highlight that Under 'Energy Projects – Temporal' of the Cumulative Effects Screening Matrix given in Volume 4, Annex 5.2 – Cumulative Effects Screening Matrix (PINS Document Reference: A6.4.5.2) of the Hornsea 3 Offshore Wind Farm Environmental Statement, incorrect timescales are given for the offshore construction of both the proposed East Anglia TWO wind farm and proposed East Anglia ONE North wind farm. The offshore construction timescales given in the aforementioned Hornsea 3 document and the offshore construction timescales that will be included in SPR's DCO applications are given in Table 1 below:

<table>
<tr><td>Table 1. Construction timescales SPR Project</td><td>Construction timescales given in Hornsea 3 Cumulative Effects Screening Matrix</td><td>Indicative construction timescales that will be included in the impact assessment</td></tr>
<tr><td>East Anglia TWO</td><td>2023 to 2025</td><td>2025 to 2027</td></tr>
<tr><td>East Anglia ONE North</td><td>2021 to 2022</td><td>2026 to 2028</td></tr>
</table>

SPR requests that the Examining Authority treat SPR as an Interested Party for the purposes of the Examination. SPR reserve the right to make further comments through the Examination process.</td><td>The timescales provided are noted. The Applicant will review this and confirm if any changes are made to its in-combination assessments.</td></tr>
</table>

Spirit Energy (REP1-041)

Summary

2.20 The Applicant is pleased to note Spirit Energy does not object to the principle of the Application. Spirit Energy's assets and licence blocks have been fully assessed within the Environmental Statement, to the extent possible based on available information / known activities at that time, and in accordance with the EIA Regulations. All potential impacts were found to have an impact of negligible to minor adverse significance in EIA terms.

2.21 The Applicant is currently reviewing the technical evidence, prepared by DNV Noble Denton and AviateQ and submitted by Spirit Energy at Deadline 1. That is new evidence, not previously seen by the Applicant and requires thorough analysis and testing against the Applicant's modelling, which has not been possible to complete in the short time between Deadline 1 and Deadline 2. To assist the examination, the Applicant has provided initial comment within our response to the written representation set out below. However, the Applicant is likely to submit further evidence in this regard. Discussion between Spirit Energy and the Applicant is ongoing, and the Applicant will continue to negotiate with Sprit Energy with a view to agreeing an updated or new SoCG to be submitted at Deadline 4.

2.22 Whilst the Applicant acknowledges that it is currently reviewing the technical evidence by Spirit Energy at Deadline 1, the Applicant has confidence in its own assessments and does not accept that there is any justification for the Protective Provisions set out in Spirit Energy's written representation.

Response to Spirit Energy

Interested Party's Written Representation	Applicant's Response
1 Introduction 'Spirit Energy' is the trading name used by Spirit Energy Limited and i 1.1 ts subsidiaries which collectively as a group conduct European oil and gas operations. 1.2 Spirit Energy ("Spirit") is headquartered in the UK and collectively operates and/or holds interests in 27 producing fields and more than 70 exploration licences across the UK, Norway, the Netherlands and Denmark. 1.3 Spirit Energy North Sea Limited (UK Company Number: 04594558), Spirit Energy Resources Limited (UK Company Number: 02855151) and Spirit Energy Nederland B.V. (Company Number: 34081068) are each entities operating under the 'Spirit Energy' trading name. Each of these entities own and operate assets located in the Southern North Sea (on both sides of the UK/Netherlands median line) including platforms, pipelines, seabed infrastructure and licensed blocks. Spirit has interests that lie within or near to the site ("the Development Site") which is the subject of Orsted's application ("the Application") for a development consent order ("DCO") for the Hornsea Project Three Offshore Wind Farm ("the Project"). 1.4 This is the full written representation prepared jointly on behalf of Spirit Energy North Sea Limited, Spirit Energy Resources Limited and Spirit Energy Nederland B.V. as objectors in relation to the examination of the Project given the common issues relevant to each. References to "Spirit" throughout the remainder of this document are a reference to any or all of the objectors as the context requires.	Noted.

Interested Party's Written Representation	Applicant's Response
1.5 In summary, while Spirit does not object to the principle of the Application – 1.5.1 The Application is likely to impact adversely on Spirit's ability to carry out operations in and around its existing assets in a safe, efficient and cost-effective manner, with specific reference to 1.5.1.1 shipping and marine activity, and1.5.1.2 aviation activity	The Applicant is pleased to note Spirit Energy does not object to the principle of the Application. Spirit Energy's assets and licence blocks have been fully assessed within the Environmental Statement, to the extent possible based on available information / known activities at that time. All potential impacts were found to have an impact of negligible to minor adverse significance in EIA terms. The Applicant would refer the ExA to the Hornsea Three Project Statement of Common Ground with Spirit Energy as submitted at Deadline 1 (REP1-007) and Applicants response to Spirit Energy's Relevant Representation (RR-107) as submitted at Deadline 1 (REP1-131) and can confirm that discussions are ongoing with Spirit Energy to address outstanding areas of disagreement, having regard to the new technical information provided by Spirit Energy at Deadline 1.
1.6 The Application also has the potential to prejudice future exploration and exploitation of oil and gas resources from Spirit's current licences compromising Spirit's ability to play its part in maximising the economic recovery of UKCS hydrocarbon resources which is its obligation under the terms of its licences from the Oil and Gas Authority ("OGA").	The Applicant would refer the Ex.A to the Applicant's comments to Relevant Representations submitted at Deadline 1 (REP1-131) and the Hornsea Project Three Statement of Common Ground with Spirit Energy, as submitted at Deadline 1 (paragraph 1.2.107; REP1-007), which outlines the Applicant's position with regards to potential future oil and gas activity.
1.7 Accordingly, the Application does not accord with relevant national policy in that it does not – 1.7.1 provide for the appropriate co-existence of Spirit's oil and gas operations (current and future) with the Project; 1.7.2 seek to minimise negative impacts and reduce risks to as low as reasonably practicable in respect of Spirit's operations and assets, or 1.7.3 avoid or minimise disruption, economic loss or adverse effects on safety in so far as Spirit's interest are concerned.	The Applicant does not agree with these statements and considers the Hornsea Project Three Environmental Statement to be in accordance with the National Policy Statements.
1.8 Furthermore the Application is not consistent with the MER Strategy as hereinafter defined and may prejudice Spirit's ability to perform its obligations thereunder.	The Applicant does not consider there to be any significant impact on Spirit Energy's existing assets or in the ability of Spirit Energy to be able to continue to conduct operations within its existing licences.
1.9 Therefore protective provisions should be incorporated within the DCO if granted as proposed within the annex to this document.	The Applicant refers the Ex.A to its point by point responses to Spirit Energy's Full Written Representation (REP1-041) below.

Interested Party's Written Representation	Applicant's Response
Section 2.Spirits Assets (covering Paragraphs 2.1 – 2.5 inclusive) *(not reproduced in full here due to inclusision of a number of tables and figures)*	A full assessment of the potential impacts of Hornsea Three on the assets identified is presented in the Application. The Applicant would like to highlight that the information provided in Paragraph 2.21 and Figure 1 of Spirit Energy's written representation (REP1-041), regarding Spirit Energy's plan to drill two further subsea wells to the west of Chiswick platform has not been previously made available to the Applicant. As such, the Application did not include an assessment of these future plans. Whilst the Applicant was made aware during post Application discussions of the potential for new wells to the west of the Chiswick platform, details of the nature, location and timing of these was not known. The Applicant will continue to consult with Spirit Energy in regard to these wells. At the present time the wells are not permitted and their future operational viability is not yet known.
3.1 We generally agree with the statement of legislation and policy set out in chapter 2 of the Environmental Statement. However, the following section is of particular relevance to consideration of the Application in light of Spirit's interests and operations in the area.	Noted
3.2 The oil and gas sector is highly regulated. The impacts of the Project on Spirit's existing and future operations will require to be managed by Spirit in the context of that regulatory framework. Accordingly the implications of that regulatory framework are relevant to the determination of the Application. As discussed in section 5 below, the EIA undertaken by the Applicant does not fully capture the impacts of the Project in relation to Spirit's interests. Moreover, the health and safety (H&S) regulatory regime under which Spirit operates requires it to assess the risks arising from the Project in a different manner and respond to those risks accordingly. For this reason, it is relevant for the examining authority to consider the potential impacts of the Project as viewed within that H&S context and the consequent implications for Spirit.	The Applicant believes that the EIA is a suitable framework for determining the impact of Hornsea Three on affected receptors. The impact to Spirit Energy's assets and operations is detailed in 6.2.11 of the ES Volume 2 – 6.2 - Infrastructure and Other Users (APP-071). The EIA Regulations provide the framework for determining the impact of Hornsea Three on affected receptors. The impact to Spirit's assets and operations are detailed in 6.2.11 of the ES Volume 2 – 6.2 Infrastructure and Other Users (APP-071). Spirit acknowledge that they must operate under a Health and Safety (H'&S) regulatory framework. The Applicant will also construct, operate and decommission Hornsea 3 in compliance with all H&S requirements. In addition to the general H&S requirements the DCO will also incorporate conditions to ensure safety management is maintained. For example pursuant to condition 15 of the Generation Licence and condition 16 of the Transmission Licence of the draft dML the Applicant must submit an Emergency Response and Co-operation Plan in accordance with the MCA's recommendations.
3.3 Safety 3.4 In terms of the Health and Safety at Work etc. Act 1974 and other offshore safety regulations (such as the Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015, the Offshore Installations and Pipeline Works (Management and Administration) Regulations 1995 and the Offshore Installations (Prevention of Fire and Explosion, and Emergency Response) Regulations 1995) Spirit has a duty to ensure that all risks associated with its offshore oil and gas operations are reduced to a level as low as reasonably practicable (ALARP).	Noted

Interested Party's Written Representation	Applicant's Response
3.5 The Application has the potential to increase or modify the risk profile in which the Affected Assets currently operate. The proximity of existing platforms, wells, pipelines and other subsea infrastructure to the proposed turbines, related support vessels and equipment (including anchors and other subsea cabling etc.) and how this proximity affects the risk profile of Spirit's operations, will require to be considered in relation to the current internal and external emergency response arrangements and risk assessments (both operational and major hazard assessments). Where the risk profile is altered revision of Spirit's affected safety cases (as required under the Offshore Installations (Offshore Safety Directive) (Safety Case etc) Regulations 2015) and/or Corporate Major Accident Prevention Policies and related procedures and assessments is likely to be required. Different risks to Spirit's operations, for example, the construction phase of the Project and operation of the windfarm, are likely to result in the risks having to be re-evaluated by Spirit to reflect any changes and a subsequent update and/or revisal the safety case. Where material change is required, these changes must be submitted to the competent authority for approval. Revisions which have or may have a significant impact on safety are likely to require submission to the competent authority for approval.	The Applicant notes Spirit Energy's requirements to maintain its safety case and refers Spirit Energy to 6.2.11 of the ES Volume 2 – 6.2 - Infrastructure and Other Users where the impact of Hornsea Three on Spirit Energy's oil and gas operations was found to be of minor adverse or negligible significance and therefore the Applicant does not believe there is any significant risk to Spirit Energy's operations.
3.6 Under section 21 of the Petroleum Act 1987 and related legislation, a safety zone of at least 500m is required from the outer periphery of certain infrastructure such as mobile offshore drilling units, fixed installations, floating storage and offloading vessels.	Noted
3.7 It is also common practice in the oil and gas industry to agree (under the terms of crossing and proximity agreements) a similar zone of up to 250m either side of existing pipelines to reduce the risk of causing damage to pipelines.	The Applicant notes the request for a buffer around existing pipelines with regard to crossing and proximity agreements. Any such buffer will be agreed as part of the negotiation of the relevant crossing or proximity agreements.
3.8 Continuing importance of oil and gas sector 3.9 Overarching National Policy Statement for Energy (EN-1) notes that natural gas will continue to play an important part in the UK's fuel mix for many years to come. Further infrastructure, beyond that which exists or is under construction at present, will be needed in future in order to reduce supply or price risk to consumers (Section 3.8). It further provides that the UK needs to ensure that it has safe and secure supplies of oil products it requires (para. 3.9.3).	Noted

Interested Party's Written Representation	Applicant's Response
3.10 Co-existence 3.11 National Policy Statement for Renewable Energy Infrastructure (EN-3) provides as follows – 3.12 Where a proposed offshore wind farm potentially affects other offshore infrastructure or activity, a pragmatic approach should be employed by the Secretary of State. Much of this infrastructure is important to other offshore industries as is its contribution to the UK economy. In such circumstances the Secretary of State should expect the applicant to minimise negative impacts and reduce risks to as low as reasonably practicable (Para 2.6.183). 3.13 As such, the Secretary of State should be satisfied that the site selection and site design of the proposed offshore wind farm has been made with a view to avoiding or minimising disruption or economic loss or any adverse effect on safety to other offshore industries. The Secretary of State should not consent applications which pose unacceptable risks to safety after mitigation measures have been considered (Para 2.6.184). 3.14 Where a proposed development is likely to affect the future viability or safety of an existing or approved/licensed offshore infrastructure or activity, the Secretary of State should give these adverse effects substantial weight in its decision-making (Para 2.6.185).	The Applicant refers Spirit Energy to 6.2.11 of the ES Volume 2, Chapter 11: Infrastructure and Other Users (APP-071) where the impact of Hornsea Three on Spirit Energy's oil and gas operations was found to be of minor adverse or negligible significance. As such, the Applicant does not believe that there are any significant negative impacts or risks to Spirit Energy's operations. The Applicant therefore believes that coexistence is possible without undue disruption or economic loss to Spirit Energy and that the construction of Hornsea Three will align with the objectives set out in the National Policy Statement for Energy EN-1 (NPS EN-1) and the National Policy Statement for Renewable Energy Infrastructure EN-3 (NPS EN-3).

Interested Party's Written Representation	Applicant's Response
3.15 Maximising economic recovery of UK petroleum 3.16 Section 9A of the Petroleum Act 1998, requires the Oil and Gas Authority to produce a strategy for achieving the principal objective of maximising economic recovery of United Kingdom petroleum (the "MER Strategy"). 3.17 Spirit is bound by the MER Strategy Central Obligation which obliges it, to take the steps necessary to secure that the maximum value of economically recoverable petroleum is recovered from the strata beneath relevant UK waters. 3.18 The MER Strategy sets out a number of Supporting Obligations intended to clarify how the Central Obligation applies in certain circumstances. 3.19 In relation to oil and gas exploration, Spirit, as a licensee, must "plan, fund and undertake exploration activities, including seismic and drilling activity… optimal for maximising the value of economically recoverable petroleum". Spirit's ability to conduct future exploration activity may be prejudiced by the Project, where Spirit cannot yet generate firm plans (such as drilling locations) resulting in potential hydrocarbon resources being unexplored. 3.20 In relation to development, Spirit are required to "plan, commission and construct infrastructure in a way that meets the optimum configuration for maximising the value of economically recoverable petroleum". Infrastructure related to the Project could prevent Spirit from meeting this obligation.(See discussion of Spirit's plans to drill two further wells at Chiswick at 2.2.1). 3.21 Spirit are required in the programme of the foregoing obligations to reduce the full lifecycle costs of the recovery of petroleum as far as possible. The cost implications resulting from the infrastructure related to the Project may prevent Spirit from meeting this obligation.	The Applicant notes Spirit Energy's response in light of obligations under Section 9A of the Petroleum Act 1998 and believes that coexistence between Hornsea Three and Spirit Energy's production licence activities is possible without impacting Spirit Energy's ability.to safely recover hydrocarbon resources. In relation to Spirit Energy's concerns regarding maximising the value of economically recoverable petroleum, the Applicant believes there are several similar drivers promoting the need for renewable energy projects with specific reference to offshore wind. The Applicant therefore believes that the Secretary of State needs to take consideration of these policy objectives when considering the Hornsea Three DCO submission. Section 8 of the Statement of Reasons submitted in support of the DCO application (Volume 4, document 4.2 Statement of Reasons of the Environmental Statement (APP-032)) sets out the need for the project. Section 8 of the Statement of Reasons references international and national climate change legislation, and key legislation referenced in the Statement of Reasons pertinent to the matters to which the Secretary of State will have regard includes: • International obligations on climate change, including European Parliament and Council agreements on climate and energy package, known as the '20-20-20' targets package in order to comply with the Kyoto Protocol to the United Nations Framework Convention on Climate Change and further European Community and international greenhouse gas (GHG) reduction commitments beyond 2012. This encompasses Directive 2009/28/EC on the promotion of the use of energy from renewable sources (Renewable Energy Directive) and sets mandatory national targets to be met by 2020; and • National climate change and energy legislation, including Climate Change Act 2008 which commits the UK to a net reduction in GHG emissions (against the 1990 baseline) of 80% by 2050 through a system of carbon budgets and the Energy Act 2013 which makes provisions to incentivise investment in low carbon electricity generation, ensure security of supply, and help the UK meet its emission reduction and renewables targets.

Interested Party's Written Representation	Applicant's Response
	Further, Section 3 of the Planning Statement submitted in support of the DCO application (Volume 8, Document 8.3 Planning Statement) outlines several National Policy Statements (NPSs) promoting the requirement for new energy Nationally Significant Infrastructure Projects (NSIPs) and renewable energy infrastructure. The Secretary of State must have regard to any NPS which has effect in relation to development of the description to which the application relates. In deciding the application for Development Consent for Hornsea Three, the relevant NPSs to which the Secretary of State must have regard in accordance with Sections 104(2) and 104(3) of the Planning Act 2008 are: • Overarching National Policy Statement for Energy EN-1 (NPS EN-1) which sets out the Government's policy for the delivery of and the position in relation to the need for new Energy NSIPs, and the assessment principles and consideration of generic impacts in relation to such projects; and • National Policy Statement for Renewable Energy Infrastructure EN-3 (NPS EN-3) which covers technology specific matters including offshore wind. NPS EN-1 advises that offshore wind is expected to provide the largest single contribution towards the 2020 renewable energy generation targets and it also supports the requirements of the Renewable Energy Directive, stating that new projects are urgently needed in order to ensure that this target is met. The Applicant therefore believes that Section 9A of the Petroleum Act 1998 is not the overriding policy consideration with regard to the development of Hornsea Three and that due regard should be paid to the other NPSs that are relevant to the windfarm development.

Interested Party's Written Representation	Applicant's Response
3.22 The "oil and gas clause" 3.23 In terms of section 3 of the Petroleum Act 1998, the government (via the Oil and Gas Authority) may grant licences that confer exclusive rights to "search and bore for and get" petroleum. 3.24 However the management and use of the seabed within a 200 nautical mile limit is administered by the Crown Estate, which leases areas of the seabed to offshore operators for their activities. 3.25 Potential conflict between offshore renewables and oil and gas activities is generally governed in such leases by the "oil and gas clause" which permits the Crown Estate to determine a lease or agreement for lease, in whole or in part, following a request from the Secretary of State, for the purposes of allowing an oil or gas development to proceed. 3.26 Guidance issued by DECC in 2014 states that: 3.27 Where it emerges that the plans of an oil or gas developer and those of an offshore renewables developer may be in conflict, the Secretary of State expects the parties to make every reasonable effort to reach a commercial agreement at the earliest stage. 3.28 Furthermore, the Guidance makes it clear that where the parties are unable to reach such an agreement, the Secretary of State, in considering applications, should take into account any matters which he or she deems to be relevant, including, but not limited to, the Government's energy policies and the Government's wider objectives, investor confidence and maximising the economic recovery of the UKCS' indigenous oil and gas resources. 3.29 The oil and gas clause should therefore be relied upon only as a matter of last resort. Moreover its use has the potential to give rise to a substantial liability in compensation payable by the oil and gas operator who benefits therefrom.	The Applicant notes that the oil and gas clause should be used as a measure of last resort but maintains that the grant of this DCO does not threaten the viability of Spirit Energy's proposals. Assuming Spirit Energy achieve the relevant consents to do so, there is no reason why it could not develop out its interests at the same time as Hornsea Three and for both developments to coexist. Where, under Spirit Energy's consent regime, there is a need to determine part of Hornsea Three's Agreement for Lease there is a mechanism for doing so, as referenced in paragraph 3.22 of Spirit Energy's Written Representation [REP1-014]. Whether such a determination is required cannot be known until Spirit Energy's plans are further advanced.
4.Proximity 4.1 Fundamentally, if the Applicant is permitted to place turbines up to the eastern boundary of the Development Site, the proximity of the Project to Spirit's Affected Assets and licensed blocks is almost certain to reduce Spirit's ability to carry out its operations in a safe, efficient and cost effective manner1 due to impacts on shipping and navigation (the impacts on vessels required to deliver supplies and undertake work in support of Spirit's operations and risks from third party vessels) and aviation (the impacts on helicopters required to transport people and some materials to and from platforms and vessels servicing Spirit's operations). These matters, including proposed protective provisions will be considered in more detail in Sections 5, 6 and 8 below.	As noted in the Applicants position on Proximity (see the Applicant's response to Spirit Energy's Relevant Representation; RR-107 as submitted at Deadline 1; (paragraph 1.2.107; REP1-131) the issue of proximity covers a number of potential impacts which are either related to shipping and navigation or aviation. The Applicant's position on each of these is outlined in the Applicant's response to Spirit Energy's Relevant Representation (REP1-131) on "shipping and navigation" and "aviation". The Applicant refers the Ex.A to the Applicants responses to Spirit Energy's Full Written Representation submitted at Deadline 1 REP1-041, in sections 5, 6 and 8 below.

Interested Party's Written Representation	Applicant's Response
4.2 The location of infrastructure related to the Project may also inhibit future exploration, development and decommissioning activities under licences currently held by Spirit. Spirit's concerns and proposed protective provisions in relation to current licences are discussed in the annex to this document.	The Applicant refers the Ex.A to the Applicant's response to Spirit Energy's Relevant Representation (RR-107) and the Statement of Common Ground with Spirit Energy, as submitted at Deadline I (paragraph 1.2.107; REP1-131), which outlines the Applicant's position with regards to potential future oil and gas activity.
4.3 Revenues to the Markham owners (payments are made based on volumes produced in return for transportation and processing services received) from Chiswick, Kew and Grove contribute to the economic viability of maintaining the Markham facilities in the Netherlands which provide an entry point into one of the key Dutch offshore gas gathering systems (WGT).	Noted
4.4 Spirit has experience of operating in close proximity to off-shore turbines, with vessels and helicopters making regular visits to 12 installations (associated with fields which include Morecambe North, Morecambe South, Bains and Rhyl) located close to the Eastern edge of the Walney Offshore Wind Farms, in the Irish Sea off the coast of Cumbria (refer to figure 3).	Applicant refers the Ex.A to their response to the Ex.A's first written questions (section b; Q1.5.7) as submitted at Deadline I (REP1-122), which also provides further information regarding the proximity of existing offshore wind farms to oil and gas infrastructure.

Interested Party's Written Representation	Applicant's Response
4.5 The Walney Offshore Wind Farms are operated by Orsted or a related company. 4.6 By way of comparison: 4.6.1 In the Irish Sea, Spirit's closest asset (the DPPA Platform) is located 4.3nm or 8km from the Walney Extension turbine array. A platform that Spirit maintains is located 3.2nm or 6km from the edge of the Walney Extension wind farm. 4.6.2 For the Project, Spirit's closest asset (the Chiswick platform) would be located 1.5nm or 2.8km from the turbine array. 4.6.3 The total height of turbines installed at Walney Extension are 165m whereas the proposed turbines for the Project may be 325m 4.6.4 The windfarms (Walney, Walney Extension, West of Duddon Sands and Ormond) in the vicinity of the East Irish Sea assets that Spirit operates or maintains occupy an area approximately 1/8th of the combined area of Hornsea Project One, Hornsea Project Two and the Project, so the impact in terms of displacement of fishing and vessels, though significant in the East Irish Sea, is much less than is likely to arise from the cumulative effect of the Project. 4.6.5 Figure 3 shows a graphical comparison of the distances between wind farms and assets in the East Irish Sea and the Hornsea area.	4.6.1 Noted 4.6.2 Noted 4.6.3 Noted 4.6.4 With regards to Spirit Energy's comment on the displacement of fisheries, the Applicant would highlight that a commercial fisheries impact assessment has been completed and presented within the Volume 2, Chapter 6, Commercial Fisheries of the Environmental Statement (APP-066). During operation, commercial fishing will be able to continue within the Hornsea Three array area. While there may be some displacement of fishing vessels from the Hornsea Three array area, this is not likely to be significant (with an assessment conclusion of minor adverse significance for all fleets). The Applicant has developed a detailed Fisheries Coexistence and Liaison Plan (APP-183) in consultation with the fishing industry to maximise the potential for coexistence during the Operation & Maintenance phase. This will minimise the level of displacement of commercial fisheries vessels from the Hornsea Three array area. Consultation contained within section 14 of Volume 2: Chapter 7: Shipping and Navigation [APP-067] demonstrated a consensus that commercial vessels would not navigate through the array. Moreover, based upon general maritime experience of navigation in constrained areas, it is considered that should any larger commercial vessels (hypothetically) choose to navigate through the array that they would operate at reduced speeds in line with Rule 6 of COLREGS (1972 as amended) and therefore reduce the potential for any time saving benefits. It is also noted that vessels will passage plan in advance of arriving within the area (as required by SOLAS (1974 as amended)) and they would choose to make early and small course alterations that would lead them to transit clear of the Hornsea Three array area. The Applicant notes that no representations were received from the operators of commercial vessels, recreational vessels or fishing vessels.

Interested Party's Written Representation	Applicant's Response
4.7 Protective measures have assisted Spirit's operations in co-existing with other windfarm developments. These have ranged from establishing buffer zones around subsea wells to allow for future drilling, cable and pipeline corridors to enable access for maintenance and decommissioning of cables and pipelines, and exclusion zones where there is a requirement to consult before entering into such areas.	In regard to the examples of protective measures provided by Spirit Energy, the Applicant does not consider these are relevant or applicable to Hornsea Three. There are no subsea wells operated by Spirit Energy within the Hornsea Three array area. Access to Spirit Energy operated subsea wells outside of the Hornsea Three array area has been assessed and no significant access restrictions have been identified (see the Applicant's response to Spirit Energy's Relevant Representation (RR-107) as submitted at Deadline 1 (paragraph 1.2.107; REP1-131). The Applicant is in consultation with Spirit Energy in regard to crossing and proximity agreements being established as discussed in paragraph 11.7.15.2 of Volume 2, Chapter 11, Infrastructure and Other Users of the Environment Statement (APP-071). There is no known decommissioning activity to be undertaken by Spirit Energy within the Hornsea three array area. Known decommissioning activity proximate to the Hornsea Three array area is scheduled to be completed prior to the start of Hornsea Three offshore construction as discussed in paragraph 11.7.11.4 l of Volume 2, Chapter 11 Infrastructure and Other Users of the Environment Statement (APP-071).

Interested Party's Written Representation	Applicant's Response
4.8 In relation to the Walney Offshore Wind Farms, Spirit has encountered the following difficulties: 4.8.1 A ferry service adopted a new routing to avoid the wind farm resulting in it heading directly towards one of Spirit's platforms resulting in regular collision warning alarms; 4.8.2 The windfarm generated radar reflections interpreted by the radar early warning system predictive (REWS) as approaching vessels (false positives); 4.8.3 The REWS, when attempting to interpret large numbers of reflections from within the array area, required more computing power than was available causing it to run too slowly; 4.8.4 The REWS was unable to detect vessels approaching the platform from within the wind farm array area; and 4.8.5 Fishing activity was displaced closer to Spirit's infrastructure.	The Applicant notes that the difficulties identified by Spirit in regard to the proximity to Walney Offshore wind farm have all been addressed within the Hornsea Project Three Environmental Statement and the Applicant's position is provided in the Statement of Common Ground with Spirit Energy submitted at Deadline I (REP1-007) (in the issue "Collision risk due to vessels being deviated by Hornsea Three and the potential interference of Hornsea Three on platform anti – collision safety systems". 4.8.1 The predicted re-routeing within section 18.2.2 of Volume 5, annex 7.1: Navigational Risk Assessment of the Environmental Statement (APP-112), show that vessels are not anticipated to route nearer to the Spirit Energy assets. This differs from the Walney Extension assessment where it was predicted that vessels would be re-routed closer to oil & gas platforms, taking into account the congested navigational features of the east Irish Sea (Volume 2, Annex B.8.A: Shipping and Navigation Technical Report in the Walney Extension Environmental Statement (Document No. 10.2.31)). 4.8.2 – 4.8.4 The Applicant notes that there is no REWS on the Spirit Energy operated platforms. The Applicant assessed the effect of Hornsea Three on the Racon and AIS system on the Spirit Energy operated J6A platform and found there to be no significant effect on either system (The Applicant refers the Ex.A to the J6A platform Racon/AIS technical note submitted by the Applicant at Deadline I; REP1-177). 4.8.5 The fishing activity which takes place in the vicinity of Hornsea Three differs markedly from fishing practises and turbine spacing at the Walney Extension wind farm. The Applicant refers the ExA to response 4.6.4 above under Proximity with regard to fisheries at Hornsea Three. The Applicant notes that Spirit Energy have not listed any issues in regard to aviation access to these assets in proximity to the Walney Offshore Wind Farms.
4.9 In relation to the Project and other windfarm projects, Spirit has sought to be co-operative and pragmatic in its discussions with the Applicant and relevant windfarm operator respectively with a view to reaching mutually acceptable solutions to allow both types of offshore developments to coexist.	The Applicant would refer the ExA to the Hornsea Three Project Statement of Comment Ground with Spirit Energy as submitted at Deadline 1 (REP1-007) which states both parties commitment to ongoing engagement and cooperation to resolve outstanding issues.
4.10 Protective provisions are sought in this instance by way of an amendment to the DCO, if granted, to facilitate the co-existence of the Project with Spirit's operations. These are set out in full in the annex to this document together with a reasoned justification.	The Applicant does not agree with the requirement for the Protective Provisions outlined in Spirit Energy's Written Representation (REP1-041). A response is provided with regards to the Protective Provisions in the section below.

Interested Party's Written Representation	Applicant's Response
5 Shipping and Navigation 5.1 Spirit commissioned a technical review of the Application and Environmental Statement in so far as it relates to shipping and navigation impacts relevant to Spirit. This review carried out by DNV Noble Denton marine services identified hazards which had not been assessed or had not been adequately assessed in order to inform consideration and determination of the Application. The conclusions of the review are contained within the report entitled Hornsea 3 Windfarm, Review of Marine Hazards, Spirit Energy dated 6 November 2018 (Report 1). 5.2 The findings of Report 1 can be summarised as:	The Applicant would refer the ExA to the Applicant's Comments on Relevant Representation (RR-107), as submitted at Deadline 1 (REP1-131), Volume 2, Chapter 7: Shipping and Navigation of the Environmental Statement [APP-067] and the Statement of Common Ground between Hornsea Project Three and Spirit Energy [REP1-007]. The Applicant would highlight that an important requirement of an EIA on the subject of Shipping and Navigation, is the Navigational Risk Assessment (NRA). A number of guidance documents were used during the production of the NRA, as follows: • MCA MGN 543 (Merchant and Fishing) Safety of Navigation Offshore Renewable Energy Installations (OREIs) – Guidance on United Kingdom (UK) Navigational Practice, Safety and Emergency Response (MCA, 2016); • MCA Methodology for Assessing Marine Navigational Safety Risks of Offshore Wind Farms (MCA, 2015); and • Guidelines for Formal Safety Assessment – Maritime Safety Council (MSC)/Circular 1023/MEPC/Circular 392 (International Maritime Organization, 2002). The Applicant has received new technical information from Spirit Energy as part of their submission to Deadline 1. The Applicant is currently reviewing the new material but has provided initial comment against several of Spirit Energy's points within our response to the main written representation.
5.2.1 The Development Site eastern boundary is much closer to Spirit's assets in the Markham area than previously experienced by Spirit elsewhere. The hazards associated with this aspect of the proposed wind farm are: 5.2.1.1 Interference with supply vessel operations to installations in the vicinity due to the requirement to divert round windfarm infrastructure. 5.2.1.3 Displacement of fishing vessel operations towards Spirit's assets with potentially severe consequences.	5.2.1.1 The Applicant would refer the ExA to Volume 2, Chapter 7: Shipping and Navigation of the Environmental Statement [APP-067]. Supply vessel routeing to the Spirit Energy installations east of the Hornsea Three array area is generally in a north-south direction and therefore there will be limited deviations due to the windfarm infrastructure. 5.2.1.3 The Applicant would refer the ExA to paragraph 4.6.4 above.
5.2.1.2 Displacement of third party passing traffic towards Spirit's assets, increasing the traffic density and hence risk of collision with installations with severe or catastrophic consequences. This displacement will increase the major accident hazard risks in the Markham area, especially near Grove. Displacement of fishing vessel operations towards Spirit's assets with potentially severe consequences.	The Applicant would refer the ExA to the Applicant's position in the Hornsea Three Project Statement of Common Ground with Spirit Energy [REP1-007]: third party vessels are expected to be displaced by the wind farm away from Spirit's assets
5.2.1.3 Displacement of fishing vessel operations towards Spirit's assets with potentially severe consequences.	The Applicant would refer the ExA to paragraph 4.6.4 above.

Interested Party's Written Representation	Applicant's Response
5.2.1.4 If the Development Site eastern boundary has a significant number of turbines i.e. a 'packed boundary', this could reduce the ability of Spirit to manage the risks associated with approaching vessels, especially errant or NUC vessels, due to the lack of visibility.	A packed boundary will still provide a minimum spacing of 1km which means any vessels within the wind farm should be visible. However, experience of multiple years of UK wind farm survey data gives no indication that a (third-party) commercial ship will pass through a wind farm. Hornsea Three is expected to shield the Markham Assets from commercial shipping and hence reduce the probability a third-party vessel will be in proximity as documented in Volume 5, Annex 7.1: Navigational Risk Assessment of the Environmental Statement (APP-112).
5.2.1.5 Considerable reduction of drift and hence reaction times to vessels going NUC close to the eastern limit of the proposed wind farm (either inside or out with the array area) before potential impact with Spirit's assets. The increase in traffic, including construction traffic and fishing vessels due to the proposed wind farm will also increase the likelihood of such events. Due to the presence of cables within the array, such vessels will not be able to anchor there.	As noted above, third-party vessels are expected to be displaced around from the wind farm resulting in a net reduction of marine traffic toward Spirit's assets (as observed in volume 5, annex 7.1: Navigational Risk Assessment of the Environmental Statement (APP-112). Fishing vessels will be able to keep fishing within the array in most cases. There will be a temporary increase in vessel activity during construction but such vessels will be under the Safety Management System of the Applicant. There will also be a Special Operations Vessel (SOV) that may be able to assist in the event of an emergency in the area.
5.2.1.6 The ability to safely manoeuvre jack up rigs onto, and off, locations (e.g. Grove, Grove West and Chiswick) close to the eastern limit of the proposed wind farm may be compromised.	The Applicant refers to the Applicant's position in the Hornsea Three Project Statement of Common Ground with Spirit Energy (REP1-007) and notes that the technical information is being reviewed and further technical discussions are planned.
5.2.1.7 The effects of the Project on the operation of construction vessels, diving vessels, pipe lay and walk to work vessels at Spirit's assets have not been adequately assessed and may be compromised.	The Applicant would refer the ExA to the Applicants response to Relevant Representations at Deadline 1 (REP1-131).
5.2.1.8 The use of helicopters by these specialist vessels may be compromised by the proximity of turbines and helicopter traffic associated with the proposed wind farm.	The Applicants position on helicopter access to Sprit Energy's operational vessels is presented in the Statement of Common Ground with Spirit Energy submitted at Deadline 1 (REP1-007) and confirms that the assessment has not predicted any significant restriction on helicopter access.
5.2.1.9 The noise associated with piling operations during construction, on diver operations at Spirit's assets, has not been adequately assessed.	The Applicants position in regard to the effect on diving operations is presented in the Applicant's response to Spirit Energy's Relevant Representation (RR-107) in section 1.2.107 of the Applicants Comments to Relevant Representations submitted at Deadline I; (REP1-131)). It is the Applicants position that this is a coordination issue that could be managed through consultation at the appropriate time. No significant effects on diving are anticipated.
5.2.1.10 Compromising the ability to deploy spread moored vessels, including heavy lift vessels, at Spirit's assets.	The Applicant would refer the ExA to the Applicants response to Relevant Representations at Deadline 1 (REP1-131) where operational sea room requirements are addressed.

Interested Party's Written Representation	Applicant's Response
5.2.2 In addition, the following generic hazards were identified: 5.2.2.1 The potential for future marine operations within the array area such as drilling, pipelay and installation of surface and subsea assets will be severely compromised. From a marine perspective, the potential to conduct seismic surveys and indeed a range of other surveys (benthic, ROV etc) within the array area and cable corridor will be severely restricted by the presence of the proposed wind farm. 5.2.2.2 The decommissioning of old pipelines in the vicinity of the cable corridor may be compromised A reduction in the effectiveness of the J6A installation Automatic Identification System ("AIS") / Automatic Radar Plotting Aid ("ARPA"), or of an Emergency Response and Rescue Vessel ("ERRV"), to monitor and manage 'errant vessels' approaching installations. Note, Marine Guidance Note 543 indicates that vessels can pass through Offshore Renewable Energy Installations ("OREIs"), and the presence of the array will degrade the ability to detect such vessels. In Section 4.1.6 of the note, the OGA outlines the HSE requirement for the Duty Holder to have a system in place to manage this issue. The assumption that commercial vessels will not navigate within the array area is based on an ideal world scenario and the hazards associated with third party vessels passing through the array area should not be 'scoped out'.	5.2.2.1 The Applicant refers the Ex.A to the Applicant's response to Spirit Energy's Relevant Representation (RR-107), as submitted at Deadline I (paragraph 1.2.107; REP1-131), which outlines the Applicant's position with regards to potential future oil and gas activity. The Applicant is not able to assess any future unknown activities as they have no known probability of occurrence or spatial or temporal reference. Therefore, the Applicant does not agree that these are material considerations in the determination in the DCO application. 5.2.2.2 The potential for Hornsea Three to restrict seismic survey activity within the construction, operation and maintenance and decommissioning phases has been assessed within Volume 2, Chapter 11: Infrastructure and Other Users of the Environment Statement (APP-071). No significant effects were predicted in any project phase. With respect to benthic surveys, the Applicant would highlight that offshore wind developers routinely undertake benthic ecology surveys as part of the requirements of their licence conditions during the operational phase of the project. Such surveys are able to proceed within the array area, subject to appropriate survey planning. Based on review of substantial periods of real world survey data Anatec have not tracked (third-party) commercial vessels passing through wind farm arrays in UK waters. This is in-line with MCA guidance (MGN 372: Guidance to Mariners Operating in the Vicinity of UK OREIs) which states that "where there is sufficient sea room it is prudent to avoid the area completely". More information has been requested on the radar and AIS monitoring on J6A and the emergency response procedures used in a potential collision scenario but it is not believed that detection will be significantly degraded due to the wind farm

Interested Party's Written Representation	Applicant's Response
5.2.3 During the construction and decommissioning phases of the Project, the following additional hazards have been identified: 5.2.3.1 Current borne sediments in suspension to be carried to Spirit assets with the potential to interfere with cooling water intakes and diver visibility.	Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061) and Volume 5, annex 1.1: Marine Processes Technical Report of the Environmental Statement (APP-101) present an assessment of the potential for increases in suspended sediment concentrations (SSC) during the construction phase of Hornsea Three. This assessment considers the potential for elevations in SSC from a variety of sources (such as drilling for monopile foundation installation, seabed preparation by dredging prior to gravity base installation, sandwave clearance (prior to cable burial) and cable burial itself). The assessment was completed using a number of spreadsheet based numerical models, alongside the available evidence base from numerical modelling at other analogous offshore wind farm sites and monitoring evidence from other offshore wind farms. The Applicant notes that this concern has not been raised in previous consultation meetings with Spirit Energy, however significant detail is presented within the Application on this subject to inform the assessment of impacts on other receptors. Background SSC in the location of the Hornsea Three array area have been found to be around 10 – 30 mg/l based on Metocean survey data, although higher during spring tides and storm conditions. The assessment predicts the spatial and temporal changes to these background levels for a variety of scenarios. In general, the findings predict high increases in suspended sediment concentrations in the immediate vicinity of the point of release (i.e. the particular construction activity under consideration), whereas further afield elevations above background levels are relatively low and generally within the range of natural variability.
5.2.3.2 Jack-up spud can placement causing seabed disturbance that could interfere with future operations.	The Applicant also notes that this concern has not been raised in previous consultation with Spirit Energy. However, an assessment of changes to sea bed morphology due to indentations left by jack up vessels is provided within Volume 2, chapter 1: Marine Processes of the Environmental Statement (APP-061). Whilst it is possible for spud can impressions to persist long (years) after the original placement of the jack up, this is very site specific and dependant the nature of the seabed and the ambient rates of sediment transport. In the case of Hornsea Three, it is anticipated that any depressions left by jack up barges would be infilled over an indicative period of months to years. Any jack up indentations are likely, in the majority of cases, to be located adjacent and in close proximity to foundations and as such are unlikely to be in a location that's would impede Spirit Energy's operations. As such, the Applicant does not consider there to be a significant effect of Spirit Energy's operations.

Interested Party's Written Representation	Applicant's Response
5.2.3.3 Dumping of spoil from dredgers to cause similar disruption to above, or seabed disturbances which could interfere with future operations.	Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061) and Volume 5, annex 1.1: Marine Processes Technical Report of the Environmental Statement (APP-101) present a detailed assessment of the disposal of sediments as a result of a range of construction activities (including disposal of dredged material, for example related to seabed preparation prior to foundation installation and sandwave clearance prior to cable laying). The assessment related to foundation installation concludes that disposal will initially result in discrete mounds of sediment in the order of tens to hundreds of metres in diameter (depending on the pattern of settlement) and tens of centimetres to a few metres in local thickness. It is possible that consecutive disposal events may overlap on the seabed, resulting in a greater local thickness of sediment but a smaller overall area of influence. The Applicant would note that such disposal will only occur within the Order Limits. Any mounds formed would be subject to reworking by naturally occurring sediment transport processes, following initial deposition. Given the highly localised nature of seabed changes predicted, the Applicant does not consider that this activity will have a significant effect on Spirit Energy's future operations.
5.2.3.4 Noise from piling operations to interfere with essential diver IRM interventions.	The Applicants position in regard to the effect on diving operations is presented Applicant's response to Spirit Energy's Relevant Representation (RR-107), in section 1.2.107 of the Applicants Response to Relevant Representations submitted at Deadline I; REP1-131). It is the Applicants position that this is a coordination issue that could be managed through consultation at the appropriate time. No significant effects on diving are anticipated.
5.2.3.5 Emergency response procedures may be compromised by the proposed wind farm.	Further information has been requested from Spirit Energy as to traffic monitoring and emergency response procedures. Based on the anticipated re-routeing of commercial shipping away from Spirit Energy's assets, the rate of alarms is not expected to increase. Vessels should still be trackable both within and beyond the wind farm, noting that the vast majority of passing vessels will be broadcasting on AIS.
5.3 Key differences between Report 1 and the Applicant's ES are: 5.3.1 While the ES necessarily has a wide scope, Report 1 is focused more specifically on the Affected Assets and considers the likely impacts of the Project in the context of the regulatory regime applicable to oil and gas, particularly health and safety, to which Spirit is subject.	The Applicant would refer the ExA to paragraph 3.2 in this table.

Interested Party's Written Representation	Applicant's Response
5.3.2 The ES relies on a standard EIA methodology. Report 1 approaches risk from an operational perspective which focusses on the probability of an unintended consequence occurring and which take greater cognisance of the potential for catastrophic outcomes. Both are relevant to the determination of the Application. .	An Environmental Impact Assessment (EIA) is a process which identifies the environmental effects of a project, both negative and positive, in accordance with European Union Directives. An important requirement of the EIA for offshore projects is the completion of a Navigational Risk Assessment which follows the MCA's *Methodology for Assessing the Marine Navigational Safety Risks of Offshore Wind Farms* (MCA, 2015). The methodology's key feature is producing a submission based on the International Maritime Organization's Formal Safety Assessment (FSA) process and is centred around risk controls and the feedback from risk controls into risk assessment. It is also noted that that the MCA's position within their Statement of Common Ground (REP1-221) with the applicant is that they are content with the methodologies used within both the ES (EIA) and NRA. The Applicant refers to the Applicant's position in the Statement of Common Ground with Spirit Energy (REP1-007) and notes that the methodology was discussed at the pre-PEIR stage with representatives from relevant stakeholders including Spirit Energy.
5.3.3 The Applicant has assumed that east-west vessel traffic displaced by the combined effect of Hornsea Project One, Hornsea Project Two and the Project will mainly pass to the north of the Project. No real justification is provided for this and Report 1 does not regard this as being a reasonable assumption].	The Applicant would refer the ExA to Volume 5, Annex 7.1: Navigational Risk Assessment of the Environmental Statement (APP-112) which provides an evidence-based approach to inform the effects to marine navigation the proposed Hornsea Three Project will have relative to the existing and future case navigational activity.
5.3.4 The Applicant has assumed that vessels will not route through the windfarm array area DNV considers that this is not a reasonable assumption. As the presence of windfarms in the Southern North Sea increases vessels are likely to elect to transit through the Project array area rather than take longer routes.	The Applicant refers to Volume 5, Annex 7.1: Navigational Risk Assessment of the Environmental Assessment (APP-112) and notes that from experience of vessel traffic surveys undertaken in the Southern North Sea over an extended period (multiple years) there is no indication of commercial vessels transiting through offshore wind farm developments, which is aligned with MCA Guidance (MGN 372) where there is sufficient sea room, as in this case.
5.3.5 The Applicant has assumed that as the large specialist vessels which serve both the offshore oil and gas and the offshore renewables industries are used to working with restricted sea room the Project will not materially restrict such operations. This is a generalisation which is made without adequate support. DNV, having examined a number of recent and planned large vessel mobilisations and referenced appropriate guidelines, considers that such operations would be severely restricted by the Project. Even where such operations would be possible with the limited sea room available increased risks would be involved.	The Applicant would refer the ExA to the Applicant's position in the Statement of Common Ground with Spirit Energy (REP1-007). Evidence shows that such operations can be carried out safely even when there is restricted sea room, with appropriate procedures and controls in place. It is noted that UK oil & gas installations have a statutory 500 metre safety zone prohibiting activities by other sea users vessels but beyond this distance any vessel is allowed to operate in proximity to platforms.

Interested Party's Written Representation	Applicant's Response
5.4 If the DCO is granted, the number of vessels (transiting and operating) in the vicinity of the Affected Assets and licensed blocks will increase. Relevant categories of vessel include: (1) vessels supporting Spirit's platforms and operations; (2) vessels involved in the construction and operation of the Project; and (3) third party vessels displaced as a result of the Project. This increased traffic will increase the potential for collisions with platforms and is likely to result in false alarms resulting in possible production shutdowns and (if manned) evacuation of personnel	The technical information is being reviewed and further technical discussions are planned. It is accepted that (2) vessels involved in the construction and operation of the Project will introduce new traffic to the general area, but this will be managed by the Applicant as part of its Safety Management System. As previously discussed, category (3) third party traffic is expected to reduce due to commercial vessels being deviated around the wind farm. Vessels supporting Spirit Energy's platforms were recorded in the NRA baseline surveys (Chapter 5, Volume 7.1: Navigational Risk Assessment (APP-112). It is recognised these will fluctuate depending on operational needs, such as during decommissioning.

Interested Party's Written Representation	Applicant's Response
5.5 The numbers of vessels visiting each of Spirit's platforms is dependent upon work that is going on. 5.5.1 Routinely a platform supply vessel (PSV) will sail to Markham J6-A twice every month where it will spend a day before moving to each of Grove and Chiswick for around ½ day at each. 5.5.2 In addition, further unplanned visits may be required. During 2017, 19 such unplanned vessel visits occurred across Chiswick and Grove. 5.5.3 Specialist vessels such as crane barges or drilling rigs are required from time to time. These vessels will typically spend considerable lengths of time close to a platform or subsea drilling location. Whilst positioning they will be attended by tugs and anchor handlers. Throughout the time that they are on station an emergency response and recovery vessel (ERRV) will be required to be close by. During the current drilling campaign, the Nobel Hans Duel drilling rig has been stationed at Chiswick since April2018 and is currently expected to remain there until April 2019. During this time, in addition to the Nobel Hans Deul, there has been an ERRV permanently in attendance. 5.5.4 Vessels in category (1) broadly fall into two broad groups: (a) offshore support vessels such as platform supply vessels (PSVs) which routinely operate within the 500m exclusion zones of offshore facilities bringing supplies, equipment and removing waste; and (b) larger specialist vessels such as drilling rigs, crane barges and accommodation facilities which may be stationed adjacent to platforms or over subsea wells/infrastructure in order to drill, re-enter or abandon wells, undertake construction or decommissioning activity and provide accommodation for personnel undertaking significant construction, maintenance or decommissioning campaigns. As described in Report 1, these vessels also need to take up stations at stand by positions somedistance prior to their final approach. Similar groupings apply to vessels in category (2). 5.5.5 Vessels in group (a) above will maintain their position through dynamic positioning whilst vessels in group (b) above will either maintain their position through dynamic positioning or by means of anchors. Dynamic positioning is achieved by a number of thrusters operating continuously to compensate for any movement of the vessel. In the event that the vessel loses power or one or more thrusters fail3 or if the sea state or weather conditions are sufficiently strong to overcome the vessel power, the vessel may drift. Where anchors are used, the vessel will often not have its own propulsion and will rely on tugs when relocating. In the event that one or more anchors fail (or the lines to one or more of the tugs are disconnected), the vessel is likely to drift. is necessary to minimise any "waiting on weather".	The Applicant would refer the ExA to the Applicant's Comments on Relevant Representation (RR-107), as submitted at Deadline 1 of REP1-131.

Interested Party's Written Representation	Applicant's Response
5.5.6 Due to the potential for these vessels to drift (referred to as being not under command (NUC)), it is usually necessary to maintain a clear path in the direction of drift (which will depend upon met-ocean conditions) to a drift off point. The distance to the drift-off point will again depend upon met-ocean conditions and the time it is reasonable to expect to regain command (e.g. by connecting a line to a tug, or undertaking maintenance to regain power). The time required (which will depend on the type of vessel and the availability of other vessels to assist) could by way of illustration be of order 30 mins even when one or more tugs are in attendance. A clear path to the drift off position is particularly important when a vessel is being moved or temporarily stationed.	
5.5.7 Prior to entering a controlled 500m zone or in some cases when commencing operations at another location, a vessel will remain at a stand by position until entry checks have been performed and it has been authorised to enter the 500m zone or proceed to its operational location. If there a situation (such as a mechanical failure, changing weather conditions or an operational change of plan) with the vessel still under command, the vessel would retreat to the stand by position which would be at a safe distance and usually a drift off position. 5.5.8 Sea room is a term used to describe the unfettered space needed to safely operate which has to include space for manoeuvring, space for anchors (which may typically extend 0.684nm or 1.245km (refer to figure 4-2 in Report 1), clear pathways to stand by and drift off positions and space for additional associated vessels (e.g. tugs and/or anchor handlers) to also operate safely. As the sea room required is dependent upon the met-ocean conditions it may be that operations can still be performed under some conditions but not under others. The more limited the conditions for safe operation, the more time may be spent "waiting on weather". Vessels of this nature are exceedingly expensive to operate (potentially several million GBP (£) per day) and have to be booked well in advance of operations so it	
5.6 Spirit considers that a lack of sea room will be one of the main impacts of the Project for: 5.6.1 vessels (in group (1)) operating in support of Spirit's oil & gas activities in the Greater Markham area placing restrictions on the use of larger vessels such as drilling rigs, crane barges and accommodation vessels; and 5.6.2 vessels (in group (2)) supporting construction or maintenance along the eastern boundary of the Project, significantly increasing the risk of collision with Spirit's assets.	The Applicant has received new technical information from Spirit Energy as part of their submission to Deadline 1. The Applicant is currently reviewing the new material and further technical discussion with Spirit Energy are planned.
5.7 In respect of vessels in category (2), it should be noted that stand by and operating positions may place these vessels in a drift on position for Spirit's assets (i.e. a position from which, were it to drift not under command a vessel would enter the asset's 500m zone and potentially collide with the asset before its drift could be averted, or stated another way, the path to its drift off position would enter the 500m zone and may lead to the asset itself).	The Applicant has received new technical information from Spirit Energy as part of their submission to Deadline 1. The Applicant is currently reviewing the new material and further technical discussion with Spirit Energy are planned

Interested Party's Written Representation	Applicant's Response
5.8 In respect of vessels in category (3), Spirit does not agree with the assumptions made by the Applicant from which it concluded that any impact would be minor. Spirit believes that, even if the density of traffic is not much higher than currently (an assertion that is poorly supported and therefore disputed), the presence of the Project will force those vessels that do pass to the east of the Project into close proximity with Spirit's assets. Spirit also believes that as shipping crews becomes more familiar with an increased number of windfarms in the Southern North Sea, vessels will elect to pass through the array area posing a danger to Spirit assets on exit (if travelling eastwards) from the Project area. Spirit believes that in order to mitigate these increased risks, the current ARPA and AIS warning systems will need to be upgraded to a predictive radar early warning system (REWS). Further work is however required to verify the effectiveness of such a REWS in operating in close proximity to turbines of the size and density proposed by the Applicant.	The Applicant refers to the Applicant's position in the Statement of Common Ground with Spirit Energy (REP1-007). The density of third party vessels (category (3)) is expected to reduce in proximity to the Markham Assets due to shielding by the wind farm and the evidence from surveys that commercial ships will deviate around in preference to passing through offshore wind farm arrays, which is consistent with MCA guidance contained in MGN 372. The current Automatic Radar Plotting Aid (ARPA) and AIS on the J6A platform is not expected to be significantly affected by the wind farm. Further information has been requested from Spirit Energy to confirm the specification of the equipment.
5.9 In light of Report 1 and the other matters discussed in this section, Spirit 5.9 considers the key impacts in relation to shipping and navigation on Affected Assets and, to the extent applicable, Licences to be: 5.9.1 An inability (or an ability much more heavily constrained than currently by met-ocean conditions resulting in delays) to carry out work essential to Spirit's oil and gas operations. Failure to carry out, or delays in, such work may result in loss of production4 and/or increased costs (both with a resultant economic impact).	The Applicant refers the ExA to the Applicant's position in the Statement of Common Ground with Spirit Energy (REP1-007) and the responses provided above.
5.9.2 Loss of production (with consequent economic impact) arising from: 5.9.2.1 Emergency production shutdowns due to vessels on collision course with platforms; 5.9.2.2 Breakdowns caused as a result of emergency shutdowns5 and waiting for repairs.	The Applicant refers to the Applicant's position in the Applicants Statement of Common Ground with Spirit Energy (REP1-007). The density of third party vessels is expected to reduce in proximity to the Markham Assets due to shielding by the wind farm and the evidence from surveys that commercial ships will deviate around in preference to passing through offshore wind farm arrays. Information has been requested from Spirit Energy on the emergency response procedures used at the Markham Assets and further technical discussions are planned
5.9.3 An unacceptable risk of collision with platforms by: 5.9.3.1 Vessels working near the eastern boundary of the Project that become not under command and drift towards a platform; 5.9.3.2 Third party vessels circumnavigating or passing through the Project array area.	As per previous responses, vessels working on behalf of the Project will be managed as part of the Applicant's Safety Management System. Risks from third-party vessels are not expected to increase due to the shielding effect of the wind farm.
5.9.4 Increased routine costs of operating and maintaining facilities due to longer vessel journeys in order to circumnavigate the Project.	The Applicant would refer the ExA to Volume 2, Chapter 7: Shipping and Navigation of the Environmental Statement [APP-067]. Supply vessel routeing to the Spirit Energy installations east of the Hornsea Three array area is generally in a north-south direction and therefore there will be limited deviations due to the windfarm infrastructure.

Interested Party's Written Representation	Applicant's Response
5.9.5. Significant cost and effort in additional updates to installation Safety Cases to account for changes resulting from the proximity of the Project. Where material change is required, those changes must be submitted to the Competent Authority for approval. It should be noted that in order to include the impact of the Project in a Safety Case, the active cooperation of the Applicant is likely to be required in order to properly characterise risks and proceduralise mitigating measures.	The Applicant notes that it is possible that Spirit Energy will be required to review their safety cases in any case prior to the construction of Hornsea Three due to the legal revision period of five years. In the event an additional revision is required as a result of Hornsea Three to any particular Safety Case, the Applicant will cooperate in consulting with Spirit Energy to assist in the provision of information that may be required in the characterisation of risk and proceduralising mitigation measures. Any amendments to these documents will remain the responsibility of Spirit Energy as the Duty Holder of their Safety Cases.
5.9.6 Restrictions and potential delays leading to increased costs and potential loss of production (with associated economic impacts) to Spirit's ability to undertake diving operations during windfarm construction when piling activities are likely. Whilst it is acknowledged that conflicts between piling and diving will generally be able to be averted by careful collaboration between Spirit and the Applicant in planning work, any unplanned work in response to emergencies or failures of subsea equipment/infrastructure will result in one or both parties suffering delays in accomplishing their respective work scopes.	The Applicant's position in regard to the effect on diving operations is presented in the Applicant's response to Spirit Energy's Relevant Representation (RR-107), section 1.2.107 of the Applicants Response to Relevant Representations submitted at Deadline I; REP1-131). The Applicants position in regard to the effect on diving operations is presented in the Applicant's response to Spirit Energy's Relevant Representation (RR-107) in section 1.2.107 of the Applicants Comments to Relevant Representations submitted at Deadline I; (REP1-131)). It is the Applicants position that this is a coordination issue that could be managed through consultation at the appropriate time. No significant effects on diving are anticipated
5.10 Protective provisions are sought to deal with these matters by way of an amendment to the DCO, if granted, to facilitate the co-existence of the Project with Spirit's operations. These are set out in full in the annex to this document together with a reasoned justification.	The Applicant does not agree with the requirement for the Protective Provisions outlined in Spirit Energy's written representation (REP1-041). The Applicants refers the Ex.A to their response with regards to the Protective Provisions in the section below.
6 Aviation 6.1 Spirit commissioned a technical report "Proposed Hornsea Three Offshore Wind Farm" dated October 2018 (Report 2) to assess the aviation impacts on the Affected Assets.	The Applicant refers the Ex.A to the Applicant's response to Spirit Energy's Relevant Representation (RR-107), as submitted at Deadline 1 (paragraph 1.2.107 of REP1-131), which outlines the Applicant's position with regards to the Aviation concerns raised by Spirit Energy. The Applicant has received the AviateQ aviation technical report provided by Spirit Energy at Deadline 1 (REP1-192) and is currently reviewing the report. The Applicant is not in a position to provide a detailed response to the report for Deadline 2. However, the Applicant has discussed aviation matters further with Spirit Energy since Deadline 1 and the parties will continue discussions at an aviation technical meeting planned for week commencing 17th December 2018. The intention of this meeting is to discuss all issues raised by Spirit Energy in the AviateQ aviation technical report submitted at Deadline 1 (REP1-192), with a view to preparing an updated SoCG for submission at Deadline 4. The meeting will be attended by aviation specialists advising both parties.
The findings of Report 2 can be summarised as: 6.2.1 a minimum distance of 7.5 nautical miles is required to safely execute an airborne radar approach from a minimum safe altitude over the windfarm of 2100 feet into the Spirit facilities.	The Applicant refers the Ex.A to their response to section 3.1 to 3.3 of the Protective Provisions in the section below.

Interested Party's Written Representation	Applicant's Response
6.2.2 a minimum distance of 5.0 nautical miles upwind is required in order to reach a minimum safe altitude over the windfarm of 2100 feet following either: 6.2.2.1 executing a single engine missed approach; or 6.2.2.2 on departure from one of the elevated helidecks with an engine failure shortly after committing to take-off.	The Applicant is currently reviewing the AviateQ aviation technical report submitted by Spirit Energy at Deadline 1 (REP1-192). the Applicant and Spirit Energy will be discussing the content of the report at a technical aviation consultation meeting to take place week commencing 17 December 2018 which will inform the Statement of Common Ground at Deadline 4.
6.3 These findings differ from those of the Applicant as: 6.3.1 The Applicant did not consider the need to be able to execute a missed approach or take-off with one engine inoperable. It is standard safe practice in flying two engine helicopters to always have the ability to follow through a manoeuvre even should one engine fail.	The Applicant is currently reviewing the AviateQ aviation technical report submitted by Spirit at Deadline 1 (REP1-192). The Applicant and Spirit Energy will be discussing MAP and take off with one engine inoperable at a technical aviation consultation meeting to take place week commencing 17 December 2018. which will inform the Statement of Common Ground at Deadline 4.
6.3.2 The Applicant took the view that as the prevailing winds are from the west, there would very rarely be a requirement to make an approach from the east (i.e. over the windfarm). The average wind direction changes from month to month and on any given day can be from any direction and can change significantly through the course of the day. As the Chiswick and Grove platforms are normally unmanned installations the accommodation they provide is intended as a temporary safe refuge and is not equipped for regular use should it not be possible to collect personnel at the end of their day's shift on the platform. Spirit's safety cases for these installations are predicated on personnel who are left on the platform normally being collected by helicopter at the end of their shift. It is therefore assumed that there will be few limitations to flights. Spirit therefore consider that flights should not be constrained by wind direction	The Applicant undertook the assessment of Airborne Radar Approaches (ARA) to the Spirit Energy operated platforms using a 12 year wind data set presented in section 7.4.4 of Volume 5, Annex 8.5.1 Aviation, Military and Communication Technical Report of the Environmental Statement (APP-113). The Applicants position in regard to ARA to the Chiswick and Grove platforms is presented in the Applicant's response to Spirit Energy's Relevant Representation (RR-107) submitted to Deadline 1 (REP1-131) The assessments identified that there are restrictions to ARA in certain weather conditions however these are not considered to be significant, considering the operational requirements of the platforms.
6.4 The approach adopted by AviateQ differed from that of the Applicant. The Applicant conducted a desktop exercise (with the differences noted in 6.3 above) and applied certain statistics to deduce that flights would not be possible on less than 1% of days. AviateQ used typical meteorological conditions and conducted flights in a flight simulator captained by a very experienced training pilot to determine that in most cases it was not possible to execute an airborne radar approach under instrument flying rules with a missed approach within standard offshore helicopter practices and the capabilities of two different aircraft used by Spirit.	The Applicant is currently reviewing the AviateQ aviation technical report submitted by Spirit at Deadline I (REP1-192). The Applicant and Spirit will be discussing the findings of the report at a technical aviation consultation meeting to take place week commencing 17 December 2018.
6.5 Spirit relies on helicopter access to its platforms and infrastructure for both routine operational matters and emergency evacuations (although it should be noted that emergency response is beyond the scope of the ES and different criteria may apply - for example when search and rescue helicopters are involved).	Noted

Interested Party's Written Representation	Applicant's Response
6.6 Table 1 indicates the number of helicopter landings made from 1 August 2018 to 22 October 2018 to each of the Affected Assets and the onshore point of departure. Whilst this level of activity is somewhat higher than normal due to current drilling operations, it illustrates a more intense period of activity, In a normal month there are around 70 return flights from Den Helder to J6-A and about 10 infield round-trip flights from J6-A to Chiswick and a similar number to Grove.	Noted
6.7 Spirit's key concerns in relation to aviation in so far as impacting the Affected Assets and, to the extent applicable, Licences are therefore as follows:	
6.7.1 The proximity of the Project to Chiswick and Grove platforms and the height of the proposed turbines will prevent an ascent with one engine inoperable under the most common meteorological conditions to the minimum safe altitude before entering the windfarm. It would therefore not be possible to land helicopters at these platforms under these normal conditions whilst operating in accordance with offshore helicopter standards. Were consent to be granted for the proposals as set out in the Application, it would become impracticable for Spirit to rely upon helicopters to transport personnel to and from these platforms. These visits are required in order to carry out essential maintenance work to ensure continuing safe production. Alternative methods of accessing the platform such as the use of "walk to work" vessels would require capital modifications to the platforms and result in increases in annual operating expenditure associated with chartering such vessels. The response times in the event of unplanned production shutdowns would be longer than were it possible to fly personnel to the platform and as a result there would be reductions in annual production. The combination of reduced production revenues, higher operating costs (therefore lower margins) and the need for capital investments could render the remaining production uneconomic and lead to an early cessation of production. Such an outcome would be contrary to MERUK.	The Applicant is currently reviewing the AviateQ aviation technical report submitted by Spirit at Deadline 1 (REP1-192). The Applicant and Spirit will be discussing the findings of the report at a technical aviation consultation meeting planned for week commencing 17 December 2018 which will inform the Statement of Common Ground to be submitted at Deadline 4.
6.7.2 The proximity of the Project to Chiswick and Grove platforms and the height of the proposed turbines will prevent almost all airborne radar approaches (over an arc of 160o) from the east when the wind has a westerly component. A significant increase in the number of occasions when flights would not be possible (relative to current) would be likely. This would manifest itself through increased losses of production due to delays in carrying out preventative or corrective work.	The Applicants position in regard to ARA to the Chiswick and Grove platforms is presented Applicant's response to Spirit Energy's Relevant Representation (RR-107); of the Applicants Response to Relevant Representations submitted at Deadline I; REP1-131. The assessments show that there is not considered to be a significant increase in the number of occasions when flights would not be possible relative to the current situation .

Interested Party's Written Representation	Applicant's Response
6.7.3 Due to the increased potential with altitude for icing, during many of the winter months it will not be possible to fly over the windfarm and instead it will need to be circumnavigated at lower altitude. Accordingly, it is proposed to re-route the main HMR 2 route, adding 10.6 nm or 19.6km to each round trip from Norwich to Chiswick. This increase in distance will require the helicopters to carry more fuel and thus less payload. Flights from Norwich to Chiswick are mainly conducted in support of vessels such as drilling rigs rather than the platform. Such flights are already severely payload constrained and so it is anticipated that during such campaigns additional flights will be needed with consequent increases in operating costs. The additional flight distances also add to the risks to which personnel are exposed. Although helicopters are a very safe mode of travel, they never-the-less constitute one of the most risky aspects of working offshore and accordingly Spirit seeks to reduce rather than increase such risks.	The Applicant would refer the Ex.A to the Applicant's response to Spirit Energy's Relevant Representation (RR-107), paragraph 1.2.107; REP1-131 as submitted at Deadline I, which outlines the Applicant's position with regards to this issue (see "Flights from Humber to the Spirit Greater Markham Area would be made logistically difficult due to the collective effect of the Hornsea projects. Flights from Norwich would need to be routed around Hornsea Three adding around 10km to each Chiswick flight"). Spirit Energy have advised that normal flights to Chiswick are in field flights from the J6A and so do not route from Norwich across the Hornsea Three array area (see paragraph 6.6 of Spirit Energy's Written Representation submitted at Deadline I; REP1-041). When non-routine flights may be required to fly from Norwich to Chiswick, consultation with the helicopter service provider or Spirit Energy has advised that icing conditions occur in the North Sea for 1% of the time. The overall effect on non-routine flights being affected for 1% of flights is not considered a significant change.
6.7.4 Even if the Applicant agreed to move the eastern boundary of the Project to be 5nm from Chiswick and Grove (parallel to the currently proposed boundary) (thus averting the situation outlined in 6.7.1), then instrumented helicopter approaches would not be possible when the wind was from an easterly direction over an arc of around 100o. Whilst not as severe as the situation described in 6.7.2, production losses due to delays in carrying out work would still be likely. Further work examining meteorological statistics would be required to better determine the overall impact.	The applicant refers the Ex.A to their response to Spirit Energy's written representation (REP1-041) at section 6.7.2, above.
6.7.5 The Applicant acknowledges that due to the significant number of flights utilised by windfarm developers, available airspace may be affected. Spirit is of the view that, whilst it is highly likely that there would be times when flight congestion introduces delays or route modifications, overall the impact of such issues will be manageable and of a much lower order of magnitude than the above effects.	The Applicant notes that agreement has been reached on this issue, as outlined in the Statement of Common Ground between Spirit Energy and the Applicant, as submitted at Deadline I (REP1-007). No further discussion on this topic is considered necessary.

Interested Party's Written Representation	Applicant's Response
6.7.6 The above concerns have been expressed for convenience in terms of the impacts upon production operations at Chiswick and Grove. 6.7.6.1 Markham J6-A is not significantly affected as it is beyond the 5nm and although less than 7.5nm, there would only be a narrow arc of wind directions of about 40o when an instrumented approach would not be possible. 6.7.6.2 As noted in Section 5, vessels such as drilling rigs with their own helidecks could be operating at any location within Spirit's licenced acreage and the same distance restrictions of 5nm and 7.5nm would apply to flights from these locations. In the case of drilling rigs in particular, this will limit the viable locations from which future drilling can be undertaken thus limiting Spirit's ability to maximise economic recovery of hydrocarbons.	The Applicant wishes to note that the Markham J6A platform is at a distance of 6.9 nm from the Hornsea Three array area and is not considered significant affected by Spirit Energy which is contrary to the request made by Spirit Energy for protective provisions to be placed around the Markham J6A to a distance of 7.5 nm (see Spirit Energy Protective Provisions submitted at Deadline I; REP1-032). The Applicant would refer the Ex.A to the Applicant's response to Spirit Energy's Relevant Representation (RR-107), as submitted at Deadline I (paragraph 1.2.107; REP1-131), which outlines the Applicant's position with regards to this issue ("Helicopter operations supporting mobile rigs undertaking maintenance and decommissioning activities for platforms, pipelines and subsea infrastructure have not been appropriately evaluated in the application"). The Applicant wishes to note that it is not possible to provide a detailed assessment of access restrictions to a drilling rig without knowing its location.
6.8 Protective provisions are sought to deal with these matters by way of an amendment to the DCO, if granted, to facilitate the co-existence of the Project with Spirit's operations. These are set out in full in the annex to this document together with a reasoned justification.	The Applicants refers the Ex.A to their response to the Protective Provisions section of the Applicants response to Spirit Energy's Written Representation (REP1-041).
7 Licence Activities 7.1 The Applicant has made an incorrect assumption that licences are not developed in their later terms. Whilst one operator may relinquish a licence, the acreage may be re-licensed by the Oil & Gas Authority. Without appropriate protective measures within the DCO, the proposal is likely to have the effect of impeding future exploration and production, whether by Spirit or a third party and/or sterilising UK hydrocarbon resource.	The Applicant would refer the Ex.A to the Applicant's response to Spirit Energy's Relevant Representation (RR-107), as submitted at Deadline I (paragraph 1.2.107; REP1-131), which outlines the Applicant's position with regards to potential future oil and gas activity. The Applicant has only been able to consider those licenced blocks with potential for spatial and temporal interactions, and specific activities for which the licence operator has the appropriate licences and consents needed to undertake the specific activity which is being assessed; and/or there is sufficient information in the public domain (available either through consultation or publicly available documents) regarding the future activity for an assessment to be undertaken. Where this criteria does not apply, the potential operational activity within that licence or any future licence, is outside the scope of the Environmental Statement. Based on the this the Applicant does not agree that these are material considerations in the determination of the DCO Application.

Response to Spirit Energy Protective Provisions (REP1-032)

Interested Party's Written Representation	Applicant's Response
1 Introduction 1.1 In proposing the following protective provisions below in relation to the Project, Spirit has drawn on its first-hand experience of operating close to the Walney Offshore Wind Farm as well as the findings of technical reports commissioned by Spirit (Reports 1 and 2) in relation to impacts on shipping and navigation and aviation. 1.2 At present, the DCO fails to make adequate provision for co-existence of the Project with Spirit's oil and gas interests. 1.3 Accordingly, Spirit requests that the DCO (if granted) be amended to include the requirements outlined below in order to address the following impacts –	Noted
2 Shipping and navigation 2.1 Exclusion Zone 2.2 An exclusion zone in which no Project infrastructure will be installed within a radius of 2nm or 3.7km from each of: 2.2.1 The Chiswick platform; 2.2.2 The Grove platform; 2.2.3 The proposed Chiswick drilling locations designated C5 and C6 in Figure 2 of Spirit's written representation dated 7 November 2018; 2.2.4 The Grove G5 subsea well-head; 2.2.5 The Kew subsea well-head. 2.3 A distance of 2nm or 3.7km is considered appropriate on the following basis - 2.4 This distance would mitigate impacts in relation to helicopter approaches and missed approaches whilst flying on instruments. 2.5 This distance would also allow an anchor spread vessel (i.e. a vessel such as a drilling rig or crane barge that requires a star-shaped set of anchor moorings to remain on station) to approach and operate over Spirit's key infrastructure 2.6 This distance is also generally consistent with guidance produced by the World Association for Waterborne Transport Infrastructure1, which recommends that no turbines are constructed within 2nm or 3.7km of a shipping channel, to provide adequate sea room for safe vessel operations. 2.6 This distance is also generally consistent with guidance produced by the World Association for Waterborne Transport Infrastructure1, which recommends that no turbines are constructed within 2nm or 3.7km of a shipping channel, to provide adequate sea room for safe vessel operations.	A statutory safety zone of 500 metres is already provided for oil & gas installations on the UKCS. Beyond that distance other sea users are free to operate. Whilst we appreciate it is preferable to have unlimited sea room for several miles around the installation, experience has shown it is possible to safely carry out the marine operations mentioned within a wind farm, as well as in proximity to a wind farm, with appropriate procedures and controls in place.

Interested Party's Written Representation	Applicant's Response
2.7 REWS 2.8 The current ARPA and AIS warning systems on the J6-A platform will require to be upgraded to a predictive radar early warning system (REWS) in consequence of the Project. In order to increase the effectiveness and accuracy of such a REWS it is likely that it will be installed on more than one platform allowing triangulation to more accurately determine the position and speed of approach of vessels. 2.9 Further work is, however, required to verify the effectiveness of a predictive REWS in such close proximity to turbines of the size and density proposed. 2.10 Accordingly, commencement of development in relation to the Project should be conditional on the provision of evidence to demonstrate that a predictive REWS (or equivalent mitigation) will operate effectively. Thereafter, the approved REWS should be implemented and maintained for the lifetime of the Project. 2.11 A predictive REWS is considered appropriate on the following basis – 2.12 The presence of the Project will likely bring a concentration of third party vessels that pass to the east of the Project into close proximity with Spirit's assets. 2.13 As third party vessels become familiar with much of the Southern North Sea being populated by wind farms, vessels will likely elect to pass through the array area posing a danger to Spirit assets on exit (if travelling eastwards) from the Project area. 2.14 A predictive REWS uses software algorithms to identify and warn of potential approaching traffic. The ARPA and AIS systems are appropriate where traffic is light and can be monitored manually but the anticipated increase in vessel activity in the vicinity of Spirit's Greater Markham Area operations calls for automated monitoring.	As per above responses, third-party commercial vessels are expected to be deviated away from the wind farm and hence away from the Markham Assets which will effectively be shielded by Hornsea Three to the west. This is supported by analysis of survey data at existing wind farms which shows commercial vessels have re-routed around, rather than through, arrays, despite the longer voyage distances involved. It is also in-line with MCA guidance which advise it is prudent to avoid arrays where there is sufficient sea room, which is the case for Hornsea Three. Given this, the Applicant does not consider that there is a requirement for mitigation and as such the implementation of a predictive REWS is not appropriate.

Interested Party's Written Representation	Applicant's Response
3 Aviation 3.1 An exclusion zone in which no wind turbines will be installed unless otherwise agreed with Spirit. The exclusion shall extend to a radius of 7.5nm or 13.9km from each of: 3.1.1 The Chiswick platform; 3.1.2 The Grove platform; 3.1.3 The J6-A platform; 3.1.4 The proposed Chiswick drilling locations designated C5 and C6 in Figure 2 in Spirit's written representation dated 7 November 2018; 3.1.5 The Grove G5 subsea well-head; 3.1.6 The Kew subsea well-head. 3.2 A distance of 7.5nm or 13.9km is considered appropriate on the following basis – 3.3 7.5nm is the distance identified by Spirit's aviation expert as being the start of an airborne radar approach (ARA) from a minimum safe altitude (MSA) of 2100 feet (based on an assumed turbine height of 325m) under instrumentation flight rules (IFR) and is consistent with the Applicant's determination of 8nm for the start of an ARA under IFR as used in the Applicant's Environmental Statement. An ARA is always executed into the wind and as it is not possible to descend below the minimum safe altitude (MSA) whilst over the wind farm, there can be no turbines along a 2nm wide corridor downwind of the destination. Flights to Spirit's Greater Markham Area assets operate 24/7/365 and so need to be operable irrespective of wind direction. If the Applicant were granted the ability to install turbines 1.5nm east of Spirit's facilities, ARAs would not be possible when the wind direction is in any direction with a 160° arc.	

Interested Party's Written Representation	Applicant's Response
3.4 Whilst Spirit may, after further analysis of meteorological data and statistics, be willing to consider accepting some limitations to flight operability, such a large arc of no fly conditions would be quite impracticable for Spirit. The exclusion zone required by Spirit to ensure safe operation of their assets will be no less than a radius of 5nm or 9.25km from each of: 3.4.1 The Chiswick platform; 3.4.2 The Grove platform; 3.4.3 The J6-A platform; 3.4.4 The proposed Chiswick drilling locations designated C5 and C6 in Figure 2 in Spirit's written representation dated 7 November 2018; 3.4.5 The Grove G5 subsea well-head; 3.4.6 The Kew subsea well-head. 3.5 A distance of 5nm or 9.25km is required as a minimum because - 3.6 Should a landing be aborted at the missed approach point (MAP), an aircraft will need to turn between 30° and 45° and climb to the minimum safe altitude (MAS). Such an operation must be able to be accomplished even in the event of one engine being inoperable (OEI). To reach MSA (based on an assumed turbine height of 325m) requires 5nm or 9.25km. Likewise should an engine fail shortly after take-off the same distance would be required in order to reach MSA. As the prevailing winds are generally from a westerly direction and thus missed approaches or single engine ascents might be most commonly required towards the Project, there can be no compromise in this exclusion radius	The Applicant rejects the basis for the protective provisions presented in section 3.1 to section 3.3 of Spirit Energy's annex to their written representation (REP1-032). In regard to section 3.1.1 and 3.1.2 of Spirit Energy's annex to their written representation, the Chiswick platform and Grove platform, do not, at the present time, have 24/7/365 helicopter access. There are a number of days when weather conditions, such as high winds, wave height, and thunder storms will prevent helicopter being able to fly or to land safely at these locations. Spirit is able to operate in spite of these normal restrictions. Spirit also acknowledges that they do not need 24/7/365 access to a manned installation (paragraph 6.7.6.1 of Spirit Energy's full written representation submitted at deadline I (REP1-041) states that "Markham J6A is not significantly affected as it is beyond the 5nm and although less than 7.5nm, there would only be a narrow arc of wind directions of about 40o when an instrumented approach would not be possible"). The Applicant in not clear why the normally unmanned installations require greater access. The assessments undertaken by the Applicant are discussed in " in section 1.2.107 of the Applicants Response to Spirit Energy's Relevant Representations submitted by the Applicant at Deadline I; REP1-131) (see "In poor flying conditions and in the event of missed approach landings, a safe distance in all directions is required before obstacles are encountered.- Helicopter operations supporting J6A, Chiswick and Grove gas platforms are identified as having constrained airspace. Access is needed at all times when the platforms are manned and helicopters are considered the primary means of escape". These assessment demonstrate that although there is an increase in days when flights are restricted. this is not considered a significant increase considering the operational requirements to these normally unmanned installations.

Interested Party's Written Representation	Applicant's Response
	3.1.3. The applicant is not clear as to why the J6A platform has been included in the list of assets requiring protective provisions when Spirit Energy have advised in the paragraph 6.7.6.1 of the full written representation submitted at deadline I that "Markham J6-A is not significantly affected as it is beyond the 5nm and although less than 7.5nm, there would only be a narrow arc of wind directions of about 40o when an instrumented approach would not be possible". 3.1.4 The proposed drilling locations designated at C5 and C6 is new information and the Applicant will continue to consult with Spirit Energy in regard to these wells. At the present time the wells are not permitted and their future operational viability is not yet known. 3.1.5 and 3.1.6 The Grove G5 subsea well head and the Kew subsea well head do not at the present time have 24/7/365 access. Any access must first be planned requiring a rig or vessel to be on location. 3.5 An exclusion zone enabling 24/7/365 operational access to any of the assets identified in points 3.1.1 to 3.1.6 would not require a radius of 7.5 nm. It is only the final approach path of an Airborne Radar Approach that is required to be flown substantially into wind. The Final Approach fix can be established at 5-6 nm (CAP 764) and at 4 nm (EASA Consolidated AMC & GM to Annex V (Part-SPA). 3.6 The Applicant notes the information presented in section 3.4 to 3.6 of Spirit Energy's annex to their written representation for protective provisions in regard to MAP. The Applicant is currently reviewing the AviateQ technical report provided by Spirit at Deadline I (REP1-192). The Applicant is consulting with Spirit Energy in this regard and an aviation technical meeting is scheduled for December 17th 2018 which will inform the Statement of Common Ground to be submitted at Deadline 4

Interested Party's Written Representation	Applicant's Response
4 Licences and Safety Cases 4.1 Obligations requiring the Applicant to: 4.1.1 Consult with the relevant Spirit entity as licensee(s) of any relevant licences prior to undertaking any potentially conflicting offshore activities within any areas where the development site and Spirit's licence areas overlap plus a further buffer of 2nm where the development site extends beyond and adjacent to any of Spirit's licence areas (for example, to prevent any HSE conflict between the parties' activities). 4.1.2 Identify and implement any safety and/or mitigation measures that may be required as part of the offshore works to allow for the updating of Spirit's safety cases and meet the requirements of the Offshore Installations (Offshore Safety Directive) (Safety Case etc) Regulations 2015. 4.1.3 Progress the Project in a manner which does not prejudice the ability of the licensee(s) to exercise any rights they may have under such licences (such may include, for example, a requirement for the Applicant to obtain the licensees' consent prior to constructing potentially conflicting wind farm infrastructure). 4.2 We propose that the protective provision should automatically fall away if the parties are able to come to a commercial agreement covering the above matters. 4.3 There is support for including such a protective provision if the Application is granted given the inclusion of comparable provisions in the DCOs for both in respect of the Hornsea Two Offshore Wind Farm (EN010053) and East Anglia Three Offshore Wind Farm (EN010056). 4.4 Furthermore to the extent that the proximity of the Project infrastructure and operations alter the risk profile of Spirit's own operations, revision of the relevant safety case is likely to be required. Where any material changes are required to a safety case, these changes must be submitted to the competent authority for approval in terms of the relevant legislation.	The Applicant rejects the basis of the protective provisions requested in section 4.1.1 of Spirit Energy's annex to their written representation (REP1-032). There is no basis for the granting of a 2 nm buffer around an oil and gas licence block in regard to HSE. This exclusion or buffer is not considered in UK HSE legislation as a potential requirement. There are no operations within the licence blocks that have been identified by Spirit Energy to justify this request. The Applicant rejects the basis of the protective provisions requested in section 4.1.2 of Spirit Energy's annex to their written representation. Safety Cases are the responsibility of the designated owner of the safety case. It is therefore the responsibility of Spirit Energy to keep their Safety Cases compliant with applicable regulations. 4.4 Please see response above to 4.1.2.

Interested Party's Written Representation	Applicant's Response
5 Protective Provisions – Drafting 5.1 Exclusion Zone - Shipping "Project Infrastructure" means any temporary or permanent installation (including but not limited to wind generator turbines, wind generator turbine foundations, supporting wind generator turbine infrastructure, buoys, anchor chains, pipes and cables) extending 10m or more from the seabed. "Spirit Energy" means the relevant Spirit Energy entity as owner or operator of the Affected Asset(s): one or each of (as applicable) Spirit Energy North Sea Limited (UK Company Number: 04594558), Spirit Energy Resources Limited (UK Company Number: 02855151) or Spirit Energy Nedlerland B.V. (Company Number: 34081068) and any future successors and/ or assignees. At any time during the lifetime of the Project, no Project Infrastructure will be installed within a radius of 2nm or 3.7km from each of: - The Chiswick platform; - The Grove platform; - The proposed Chiswick drilling locations designated C5 and C6 in Figure 2 of Spirit Energy's written representation dated 7 November 2018; - The Grove G5 subsea well-head; - The Kew subsea well-head (together "the Affected Assets"). Unless otherwise agreed in writing between the Operator [Orsted and successors] and Spirit Energy.	The Applicant recognises and respects the statutory 500m zones around the Spirit Energy fixed platforms and certain subsea assets in the area. Similarly, it is standard practice for wind farms to apply for temporary 500m rolling safety zones during construction work. Beyond these zones all sea users are free to operate. Therefore, we do not believe that an extended zone of two nautical miles is justified. Evidence shows that offshore operations can be carried out safely even when there are restrictions within 1-2 nautical miles, based on appropriate procedures and controls being implemented.
5.2 Exclusion Zone - Aviation "Spirit Energy" means the relevant Spirit Energy entity as owner or operator of the Affected Asset(s): one or each of (as applicable) Spirit Energy North Sea Limited (UK Company Number: 04594558), Spirit Energy Resources Limited (UK Company Number: 02855151) or Spirit Energy Nedlerland B.V. (Company Number: 34081068) and any future successors and/or assignees. At any time during the lifetime of the Project, no wind turbine generator forming part of the Project will be installed within a radius of 7.5nm or 13.9km2 from each of: - The Chiswick platform; - The Grove platform; - The J6-A platform; - The proposed Chiswick drilling locations designated C5 and C6 in Figure 2 of Spirit Energy's written representation dated 6 November 2018]; - The Grove G5 subsea well-head; - The Kew subsea well-head (together "the Affected Assets"). Unless otherwise agreed in writing between the Operator [Orsted and successors] and Spirit Energy.	The Applicant rejects the requirement for the Protective Provisions outlined in section 5.2 (1 – 2) of Spirit Energy's annex to their written representation (REP1-032). The Applicant has summarised its position with regards to Aviation access to existing Spirit Energy assets in response to Section 3 of Spirit Energy's annex to their written representation (REP1-032).and also within the Applicant's response to Spirit Energy's Relevant Representation (RR-107), as submitted at Deadline I (REP1-131). Whilst the Applicant acknowledges that it is currently reviewing additional information provides by Spirit Energy at Deadline 1 on this subject (namely the AviateQ technical report; REP1-192) and that a technical meeting is scheduled to discuss this, the applicant does not accept that there is any technical basis for protective provisions implementing a 7.5 nm exclusion zone around Spirit's assets for Aviation.

Interested Party's Written Representation	Applicant's Response
5.3 REWS – Navigational safety (1) No construction of any wind turbine generator forming part of the Project shall commence until the Secretary of State having consulted with Spirit Energy is satisfied that appropriate mitigation will be implemented prior to any wind turbine generator becoming operational and maintained for the life of the Project. (2) For the purposes of this requirement— "appropriate mitigation" means measures comprising a predictive Radar Early Warning System to mitigate any adverse impacts on and ensure the safe operation of Spirit Energy's assets - J6-A, Chiswick and Grove- ("the Affected Assets") for the life of the Project; "Radar Early Warning System" means the radar early warning system used to monitor and track the positions of vessels proximate to the Affected Assets. It comprises primarily of radars fitted on a number of Spirit Energy's offshore platforms along with associated software providing a multi-site, multi-sensor integrated marine surveillance system with a predictive early warning capability; "Spirit Energy" means the relevant Spirit Energy entity as owner or operator of the Affected Asset(s): one or each of (as applicable) Spirit Energy North Sea Limited (UK Company Number: 04594558), Spirit Energy Resources Limited (UK Company Number: 02855151) or Spirit Energy Nedlerland B.V. (Company Number: 34081068) and any future successors and/or assignees. (3) The Operator [Orsted and successors] shall thereafter comply with all obligations contained within the appropriate mitigation for the life of the Project.	The Applicant rejects the requirement for the Protective Provisions outlined in section 5.4 (1 – 3) of Spirit Energy's annex to their written representation (REP1-032). This proposed Protective Provision relates to the implementation of a predictive Radar Early Warning System to mitigate an increase in collision risk due to Hornsea Three. However, as noted in our responses above, third party commercial vessels are expected to be deviated away from the wind farm and hence away from the Markham Assets which will effectively be shielded by Hornsea Three to the west. This is supported by analysis of survey data at existing wind farms which shows commercial vessels have re-routed around, rather than through, arrays, despite the longer voyage distances involved. Given this, there is no requirement for the mitigation proposed by Spirit Energy. Discussions with Spirit Energy have clarified they currently use an ARPA Radar and AIS on the J6A platform to monitor shipping (not a 'REWS'), It is not expected that these systems will be significantly affected by the wind farm. Upgrading the existing systems due to the wind farm is not justified based on the anticipated deviation of passing traffic away from the Markham Assets

Interested Party's Written Representation	Applicant's Response
5.4 Coordination and safe operation of licence activities (1) The following provisions shall have effect for the protection of Spirit Energy unless otherwise agreed in writing between the Operator and Spirit Energy. (2) In this Part— "Protected Area(s)" means any area where there is an overlap between the development site for the Project and Spirit's licence area(s) and where the development site extends beyond and adjacent to Spirit's licence area, a further buffer of 2nm will be included beyond the relevant Spirit licence area(s); "Safety Case" means a safety case as defined by the Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015 (as amended or replaced); "Spirit Energy" means the relevant Spirit Energy entity as licence holder of an exploration licence within the Protected Area(s): one or each of (as applicable) Spirit Energy North Sea Limited (UK Company Number: 04594558), Spirit Energy Resources Limited (UK Company Number: 02855151) or Spirit Energy Nedlerland B.V. (Company Number: 34081068) and any successors and/or assignees as future licence holders. (3) Before commencing each of (i) construction of any part of the Project; (ii) operation of the Project and (iii) decommissioning of the Project within the Protected Area(s), the Operator must submit to Spirit Energy plans and sections of the proposed works and such further particulars as Spirit Energy may, within 28 days from the day on which plans and sections are submitted under this paragraph, reasonably require. (4) As part of the process described in paragraph (3), Spirit Energy shall consider whether the relevant works and/or operations proposed by the Operator at each of the stages (i), (ii) and (iii) may give cause for any Safety Case relating to the Protected Area to be updated. In such circumstances, the Operator will co-operate with Spirit Energy to identify and implement safety and/or mitigation measures that may be required (on account of the Operator's proposed works and/or operations) to update Spirit Energy's Safety Case(s) to the satisfaction of the competent authority.	The Applicant rejects the requirement for the Protective Provisions outlined in section 5.4 (1 – 7) of Spirit Energy's annex to their written representation (REP1-032). The Applicant is not aware of any basis for the granting of a 2 nm buffer around an oil and gas licence block in regard to HSE and is not aware of any operations within the licence blocks that have been identified by Spirit to justify this request. With regards to Spirit Energy's safety cases, in the event an additional revision is required as a result of Hornsea Three to any particular Safety Case, the Applicant will cooperate in consulting with Spirit Energy to assist in the provision of information that may be required. Any amendments to these documents will remain the responsibility of Spirit Energy as the Duty Holder of their Safety Cases.

Interested Party's Written Representation	Applicant's Response
No works comprising any part of the Project, the operation of the Project or decommissioning of the Project (as relevant) within the Protected Area(s) may be commenced until plans and sections in respect of the works submitted under paragraph 3 have been approved by Spirit Energy. For the avoidance of doubt, Spirit Energy shall not be required to provide any approval to the Operator as described in this Part X while the process of updating and/or review by the competent authority of Spirit Energy's Safety Case(s) is ongoing. (5) Any approval of Spirit Energy required under paragraph 4 must not be unreasonably withheld or delayed but may be given subject to such reasonable conditions (in addition to any safety or mitigation measures relating to any Safety Case(s)) as Spirit Energy may require to be made for the continuing safety and operational viability of Spirit Energy's operations in the relevant Protected Area(s). (6) (i) Subject to sub-paragraphs (ii) if, by reason or in consequence of the construction of any of the works, operation or decommissioning of the Project referred to in paragraph 3, any damage is caused to any apparatus or property owned, rented, leased or otherwise by Spirit Energy, the Operator must indemnify Spirit Energy in relation to any such damage. (ii) Nothing in sub-paragraph (i) imposes any liability on the Operator with respect to any damage to the extent that it is attributable to the act, neglect or default of Spirit Energy its officers, servants, contractors or agents. (7) Any dispute arising between the Operator and Spirit Energy under this Part shall be determined by arbitration unless otherwise agreed in writing by the Parties.	

Mr Martin Kemp (REP1-042)

Summary

2.23 This response extends to the written representations submitted by Affected Persons as identified in the Book of Reference (APP-033).

Response to Mr Martin Kemp

Interested Party's Written Representation	Applicant's Response
Additional to my objection submitted to you on the 18th July 2018:- I would like to add that I am still not interested in your coming on my land.	The Applicant would refer to the Applicant's Comments on Relevant Representation RR-051 submitted at Deadline 1 (REP1-131), the Applicant's Response to the ExA's First Written Question Q1.9.1 (REP1-122) and to the Applicant's Compulsory Acquisition (CA) Schedule (REP1-134) which sets out the attempts made by the Applicant to enter into a voluntary agreement with the landowner.

Mr Michael Wright (REP1-045)

Summary

2.24 Mr Michael Wright has submitted one written representation at Deadline 1 (REP1-045). The written representation raises concerns regarding solar and space weather resilience as well as cyber-attacks.

Response to Mr Michael Wright

Interested Party's Written Representation	Applicant's Response
Solar and Space weather resilience. The UK National Risk Register issued in 2017 clearly states that there are significant risks to the national infrastructure that need to be considered. Space weather, in particular, Coronal Mass Ejections in particular are a significant risk to the national energy infrastructure. UK Space Weather Preparedness Strategy Department for Business, Innovation and Skills, Space Weather Preparedness Strategy, version 2.1 2015, section 5.4 "Some UK systems are more resilient and robust to space weather than counterparts abroad: the GB power grid network is highly meshed and has a great deal of built in redundancy. This potentially makes it less susceptible to space weather effects than power grids in some other countries. Over recent years a more resilient design for new transformers has been used to provide further mitigation. The UK's mobile communication stations rely on power. However, they will continue to supply services to customers if timing synchronisation through Global Navigation Satellite Systems link is lost. In North America, an in-built parallel system that needs both power and GPS to function has been introduced, increasing vulnerabilities. Some of this resilience is not the result of planning for this risk but good fortune. A priority for the future is to ensure we design in resilience to space weather into technology in line with our understanding of the risk.	The Applicant would refer to the Applicant's Comments on Relevant Representation RR-024 submitted at Deadline 1 (REP1-131).
Cyber Attacks National Cyber Security Centre coordinates the nation's infrastructure cyber defences. It would be useful to know: 1. Has the Operator consulted with the NCSC, or participated in any industry-wide vulnerability reviews? 2. If so, has it taken any recommended action?	With regards to security of supply, project assets and systems will be designed and constructed with physical access control and cyber-security measures as required by authorities and our internal policies as necessary to meet any threats. The Applicant would note that the need for consultation with NCSC would be determined during detailed design when such measures and project systems are being designed.

Oulton Parish Council [REP1-046]

Summary

2.25 Oulton Parish Council have submitted one written representation at Deadline 1 (REP1-046). The written representation sets out Oulton Parish Council's comments on impacts from the onshore main construction compound proposed at the former Oulton Airfield.

2.26 The Applicant would refer to the Appendix 20 of the Applicant's response to Deadline 1 (REP1-176) which provides commentary on the main construction compound, particularly Annex A and Annex B which provides details on the proposed access strategy. Although the Applicant considers that significant progress has been made in demonstrating a workable access strategy for the main construction compound, it is acknowledged that the measures set out in Annex A and B in respect of Option 1: Passing Places are part of ongoing discussions with NCC (as local highway authority) and other interested stakeholders (including OPC). Notwithstanding this, the Applicant is confident that a solution acceptable to NCC as the local highway authority, taking into consideration the feedback received from OPC, can be reached and will be secured, once agreed, through the Outline CTMP (APP-176).

Response to Oulton Parish Council

Interested Party's Written Representation	Applicant's Response
Oulton Parish Council (OPC) welcomes this opportunity to submit a brief statement of our current position, as follows: 1. For clarity: OPC has no Statement of Common Ground with Orsted. 2. OPC has been requesting from Orsted detailed proposals on the Access Route to their Main Construction Compound since the first quarter of this year. 3. At a Working Group meeting with Orsted on 27th September - only 5 days before the Preliminary Meeting - some OPC councillors were given our first sight of the applicant's proposals for an Access Route to their Main Construction Compound at Oulton. These drawings and supporting documents outlined four potential plans: Options 1, 2, 3a and 3b. During the meeting, 3a and 3b, involving one-way systems, were quickly set aside as unworkable and Orsted volunteered that they had been included "for completeness" only. Options 1 and 2 were discussed more fully. Option 2 outlined road-widening all along the narrow 1 km route from the B1149 to the entrance to the site, and was considered by OPC to represent crucial environmental threats to mature oak trees and hedges, and a dangerous legacy for future development of the site.	The Applicant would refer to the Appendix 20 of the Applicant's response to Deadline 1 (REP1-176) which provides commentary on the main construction compound, particularly Annex A and Annex B which discusses the options noted in this representation. Appendix 20 also reflects the position communicated by Oulton Parish Council Working Group in respect to Option 1 being the least worst option, whilst noting that there remained concerns; it also reports on subsequent feedback received from OPC following a wider OPC meeting. Although the Applicant considers that significant progress has been made in demonstrating a workable access strategy for the main construction compound, it is acknowledged that the measures set out in Annex A and B in respect of Option 1: Passing Places are part of ongoing discussions with NCC (as local highway authority) and other interested stakeholders (including OPC). Notwithstanding this, the Applicant is confident that a solution acceptable to NCC as the local highway authority, taking into consideration the feedback received from OPC, can be reached and will be secured, once agreed, through the Outline CTMP (APP-176). Furthermore, as the access strategy to be implemented will have direct impacts on the associated noise and vibration, and air quality assessment – particularly at the residential property located along The Street (The Old Railway Gatehouse), this work is also considered ongoing. The status of discussions regarding the main construction compound are reflected in the Statement of Common Ground between Hornsea Project Three and Norfolk County Council
4. Option 1 involved the use of slightly formalised temporary passing places and (permanent) improvements to the junction off the Holt Road with Oulton Street. The PC, while acknowledging that this was probably the "least worst" of the only options on the table, nonetheless expressed major concerns about Option 1 on the following grounds: · <!--[endif]-->Passing places are not an efficient way of managing this density of two-way HGV traffic over such a long period of time (10 years).	

Interested Party's Written Representation	Applicant's Response
· <!--[endif]-->Orsted's traffic counts have been short-lived and inappropriately timed, such that they have grossly under-estimated the amount of agricultural HGV traffic that will be competing for this access route for many months of every year. · <!--[endif]-->No cumulative impact assessment has yet been forthcoming of the additional effect of the HGV traffic generated by Vattenfall's two compounds that are also proposed within metres of this site, and sharing the same access route. · <!--[endif]-->This option contains no meaningful mitigation for the inhabitants of The Old Railway Gatehouse. · <!--[endif]-->OPC maintains that the conclusions reached by the Planning Inspector in dismissing the AD Appeal in June 2014 (Ref: APP/K2610/A/14/2212257) have not been adequately addressed by simply lengthening some of the passing places and cutting back some hedges near the bend. · <!--[endif]-->Therefore, OPC maintains that this density of HGV traffic would create highway dysfunction and impact negatively on highway safety for a period of up to 10 years. 5. The meeting continued with a discussion of an entirely different proposition viz: the possibility of Orsted creating their own access road directly off the Holt Road. Orsted claimed that they had "considered" this idea but that they had been unable to find a "willing landowner". OPC outlined several of the more direct routes that could be taken, across private land, thereby removing the construction traffic entirely from the public highway. 6. At the end of that meeting (27/9/18), OPC reminded Orsted that, as we are a statutory body, their range of Options for the access route would now have to be put to the full Council, and the residents, for their feedback. The Parish Council has some concerns that, in the meantime, the applicant may have been promoting to third parties the idea that Oulton PC have in some way "agreed" to Option 1, or that we have "accepted" it as the "least worst" option. This is absolutely not the case.	(REP1-232), as well as between Hornsea Project Three and Broadland District Council as submitted at Deadline 1 (REP1-099)
7. Since this meeting with Orsted (27/9/18), the applicant's proposed Access Strategy was discussed at the next full meeting of Oulton Parish Council on 23rd October, when many residents and 2 key landowners were present and participated in the discussion. The outcome of this meeting was that the Council and the residents had grave concerns about all 4 of the Access Route Options and much preferred that Orsted should explore further the notion of a direct access route off the Holt Road. This Option became known as Option "R" (R= resident). Neither of the 2 key landowners present expressed an overriding objection to this idea, and one in particular responded that he was "always open to negotiation". Such a dedicated access road would have many significant advantages: · it would take all Orsted's construction traffic off the narrow lane, avoiding all the competing agricultural, commuter and residents' traffic. At a stroke, this would minimise the otherwise severe impact of this construction traffic on the residents of Oulton, and other road users, over 10 years; · it would avoid the risk of permanent loss of trees and hedgerows through	The Applicant has received two proposed access locations from the OPC Working Group – labelled Option R (provided as Annex A) - and is in the process of evaluating these proposals in regard to technical feasibility, including highway safety. The Applicant will discuss the outcomes of this evaluation with Norfolk County Council (as the Local Highways Authority), Broadland District Council as well as Oulton Parish Council. The Applicant will also engage with landowners affected by the alternatives put forward by OPC to see whether a voluntary agreement for a direct access is feasible. However, the Applicant maintains its position that a solution that is acceptable to NCC as the local highway authority for use of The Street can be reached.

Interested Party's Written Representation	Applicant's Response
root compaction caused by the density of HGV traffic over 10 years; · it would not have to be constructed to NCC highways standards; · it would significantly mitigate the effects for The Old Railway Gatehouse and obviate the need for works on 'the hump'. It was agreed at the Parish Council meeting that Orsted should be encouraged, with all possible speed, to explore further the possibility of implementing Option R. 8. On 2nd November, OPC councillors were given our first opportunity to meet with NCC (Highways) to discuss Orsted's Access Strategy to the compound. We clarified with them our continuing misgivings about the feasibility of Option 1, and described to them the alternative approach embodied in Option R. We asked for an "in principle" opinion as to the feasibility of this suggestion, before approaching Orsted. NCC replied (and later confirmed in writing) that: "in principle NCC have no overriding objection to the creation of a new access on the Holt Road - provided any such access meets with current design standards, in particular relating to highway safety."	
9. To summarise: Oulton Parish Council's current position on Orsted's Access Strategy for the Main Construction Compound is as follows: · <!--[endif]-->We dispute that Option 1 represents a feasible or safe traffic management plan for this density of 2-way HGV traffic over a period of up to 10 years, for all the reasons outlined at point 4; · <!--[endif]-->The residents of Oulton, in open discussion at a Parish Council meeting on October 23rd, have put forward an alternative proposal (Option R) for a dedicated access route to be created by Orsted directly off the Holt Road to the compound; · <!--[endif]-->At that same meeting, key landowners who might be affected expressed a willingness to consider this proposal; · <!--[endif]-->NCC (Highways) has stated that they have, in principle, no overriding objection to the creation of a temporary access directly off the Holt Road. For all the reasons stated above, Oulton Parish Council has recently requested of Orsted that the applicant should explore with due diligence the opportunity represented by the proposal in Option R, to remove all their construction traffic from the southern end of Oulton Street, by creating their own dedicated access route.	The Applicant has responded to individual points above and continues to engage with a working group set up with Oulton Parish Council, as well as Norfolk County Council and Broadland District Council to inform the developing access strategy for the main construction compound.

Kelling Estate LLP (REP1-048)

Summary

2.27 This response extends to the written representations submitted by Affected Persons as identified in the Book of Reference (APP-033).

Response to Kelling Estate LLP

Interested Party's Written Representation	Applicant's Response
1.0 Introduction 1.1 This statement is our response, submitted on behalf of our clients Kelling Estate LLP, to the underground cable route proposed as part of the Hornsea Project Three Offshore Wind Farm. Kelling Estate LLP (the Estate) is a rural based business that has successfully combined conservation and sporting interests on their land holdings at Kelling and have diversified into tourism related businesses. 1.2 It is our belief that the construction phase of the proposed underground cable on the route submitted will cause significant disruption to our client's property, cause long term damage to the ecology of the Estate, disrupt the principle sporting enterprise and consequently reduce income to the associated business in the area.	The Applicant has responded to the individual points of this representation below.
2.0 Background Disruption to Ecology 2.1 The proposed cable route will run for 3614.36m across the Estate and the area potentially used for laying cables extends to 53.55 acres with a working area of approximately 71.44 acres during construction. 2.2 The potential impact on the Natural Capital of the Estate is significant as, even with the adoption of Horizontal Direct Drilling (HDD) in part, a significant amount of the land surface will be disturbed. 2.3 The cable route passes through areas of mature native woodland, heathland grasses, regenerated grassland (former arable) and will see significant changes in terrain over its course. 2.4 The potential for medium term habitat loss, soil displacement and degradation of biodiversity is significant.	Impacts on ecological receptors are assessed in Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement [APP-075]. The Applicant has sought to minimise impacts on ecological receptors through design, including avoidance of designated sites and the use of trenchless technologies (i.e. HDD) to minimise hedgerow and tree removal, as well as impacts to sensitive habitats adjacent to watercourses. Through route refinement or the use of HDD, the Applicant has also avoided all significant areas of woodland. An assessment of the potential impacts on the remaining areas of small, scattered woodland, or woodland edge, which would be removed during the construction phase, is provided in paragraphs 3.11.1.19 – 3.11.1.22 of Volume 3, Chapter 3: Ecology and Nature Conservation of the Environmental Statement [APP-075]. This assessment concludes that there would be no significant effect on the habitats specifically referenced in this representation with the implementation of mitigation measures. Mitigation measures in respect of ecological receptors are secured through Requirement 17 and Requirement 10 of the draft DCO [APP-027], which requires a final CoCP and EMP to be prepared and approved by the relevant planning authority (in consultation with the Environment Agency in respect of Requirement 17, and with Natural England in respect of Requirement 10) prior to the commencement of construction. Details of the proposed mitigation measures are set out in the Outline CoCP [REP1-142] and the Outline EMP [REP1-147].
Choice of Route and Resultant Burden 2.5 The impact on a single landowner is significant and it seems an unreasonable burden for one landowner to shoulder when alternative routes were available. 2.6 The chosen route is an alternative that was proposed at a late stage of the initial consultations. We understand that the current route was chosen to avoid difficulties crossing the North	Volume 1, Chapter 4: Site Selection and Consideration and Alternatives (APP-059), Volume 4, Annex 4.3: Refinement of the Onshore Cable Corridor and Associated Infrastructure (Stages 5-7 Scoping to PEIR) and Volume 4, Annex 4.4: Post-PEIR Changes to Hornsea Project Three (Stages 8-9) (APP-095) sets out the approach and principles used in decision making as well a detailed description of alternative route options.

Interested Party's Written Representation	Applicant's Response
Norfolk Railway. 2.7 We are not aware that the potential difficulties in crossing the North Norfolk Railway were ever investigated beyond the point of first survey. Requests were made to see the technical and engineering reasoning for why the first proposed route had to be abandoned and the current route adopted. 2.8 Our clients wish to understand the sound technical and engineering reasons for why the route was altered to cross their property and increase in length by approximately 1.1km. No information of substance has been provided to date.	In respect to the points raised in this representation, a refined landfall location and western re-route around Kelling was incorporated into the design post-PEIR in response to technical considerations, avoidance of sensitive areas and feedback received from the local community. At the historic railway crossing near Kelling Heath, the route was amended to run further to the west to avoid the technically challenging engineering design that would be required to HDD under a heritage railway in the original location. This was primarily linked to the topography and steep embankments at the original location. A wider cable configuration at the revised crossing location has been designed as shown in the Onshore Order Limits (APP-010) due to the potential need to separate the circuits to single HDDs for each cable as there may be an increased risk of settlement for larger HDDs in this particular location.
Disruption to Business 2.9 Kelling Estate LLP operates a significant sporting enterprise on their land holdings at and around Kelling. The principle enterprise is game shooting and the quality of the product provided by the Estate is very high. 3.0 The construction works will, at the very least, have the following impact on the operation of the shoot in any season that the works take place: • Render 8 pheasant drives inoperable • Significantly degrade 80% of the partridge drives making the partridge shoot inoperable. • Degrade 4 out of 6 of the main signature drives. • The works corridor will pass within yards of the largest two release pens resulting is disruption to other drives not directly crossed by the cable route. 3.1 Disruption to the shoot enterprise will result in significant loss of income, which can be compensated for and it is expected that provision for financial recompense will be made in any agreement or DCO. 3.2 Financial compensation cannot compensate for damage to the reputation of the shoot. Offering a sub optimal sporting experience is not an option for a business that exists to provide its customers with an almost unique quality of shoot. It is better for the business to not operate at all during the construction period than risk providing a poor product and losing customers. 3.3 Disruption to the operation of the business could be managed and partially mitigated by commitment to set working periods and a commitment to use reasonable endeavours to have the ducting works carried out in a short timeframe.	The Applicant is in ongoing discussions with this landowner with an aim to reach a voluntary agreement. The Applicant would refer to the Applicant's Compulsory Acquisition Schedule submitted at Deadline 1 (REP-134) which provides an updated version of Appendices A - D of the Statement of Reasons (APP-032) and includes an update on discussions with Kelling Estate LLP. In the event that it is not possible to enter into a voluntary agreement, compensation will be payable in accordance with the Compensation Code, which includes loss of income. The Applicant notes that a landowner has a duty to mitigate its losses. Further information is set out in paragraph 11.2 of the Statement of Reasons [APP-032]. The Applicant is unable to be specific on the time of year and exact length of time that construction works will be required, especially on an individual land-holding basis, as the details of the construction phasing and construction programme are not known at this stage and will be developed during detailed design. Notwithstanding this, it is estimated that works associated with each phase are expected to progress along the Hornsea Three onshore cable corridor with a typical active construction works duration of three months at any particular location.

Interested Party's Written Representation	Applicant's Response
3.4 Commitment to avoid working during sensitive times of the year, such as 1st August to 1st February would allow the Estate to manage the shoot around the works. 3.5 Commitment to use reasonable endeavours to have the cable ducts installed and the trench backfilled within 1month of breaking ground to create the cable trenches would give the Estate, and any other landowner affected by the cable works, comfort to know that on any one area will only see significant disruption for a manageable period. 3.6 Whilst constructive negotiations have taken place with Orsted there is a lack of willingness to refine the build period down to any less than 2 years per phase within the overall 8-year build window. If this matter could be tightened to give landowners greater certainty of how the works will affect them the works would be more manageable for the landowner.	
3.0 Conclusion 3.1 It is our client's belief that the Orsted proposals fail to consider the impact on the Natural Capital and business interests of Kelling Estate LLP. It will significantly impact on the Estate's ability to deliver a product that it has spent years developing. We believe that the cable route could follow a shorter and more direct route from landfall to Warren Farm and to date have not been provided with evidence as to why this shorter route was not possible, as opposed to not desirable, to take. 3.2 Our client respectfully requests that the points contained in this statement are fully considered within the examination process. Our intention is to submit a full written representation in due course and, if required, request that we can make oral representations if necessary.	The Applicant has responded to the individual points of this representation above.

Richard Gordon Esq. (REP1-049)

Summary

2.28 This response extends to the written representations submitted by Affected Persons as identified in the Book of Reference (APP-033).

Response to Richard Gordon Esq.

Interested Party's Written Representation	Applicant's Response
Introduction 1.1 This statement is our response, submitted on behalf of our client Richard Gordon, to the underground cable route proposed as part of the Hornsea Project Three Offshore Wind Farm. 1.2 It is our belief that the proposed route for the underground cable submitted, and the likely protective zone, will frustrate and ultimately preclude intended residential development by our client. The following gives background information on the	The Applicant has responded to the individual points of this representation below.

Interested Party's Written Representation	Applicant's Response
development potential for this part of our client's land.	
Background 2.1 Site 2.1.1. The site is currently agricultural land and farmed as part of the Intwood Hall Estate. Intwood Hall is located to the south of Norwich within close proximity to the city of Norwich. The subject land extends to approximately 20 acres (8.20 ha). 2.1.2 The land is gently undulating with the land sloping more towards the more northern part of Intwood Lane. 2.1.3 The residential development currently located on Intwood Lane is very much characterised by a linear form. The site adjoins the existing development on Intwood Lane to north. 2.1.4 The proposed cable route will sever the potential site from existing development.	The Applicant notes the respondent's comments regarding the potential of the site for development.
Policy Support 2.2.1 South Norfolk Council Local Plan 2.2.1.1 Policy 15 of the Joint Core Strategy for South Norfolk Council defines Swardeston as a Service Village within the existing Local Plan in which land will be allocated for small scale housing growth from the period of the 1 April 2008 to 31 March 2026 within the range of 10-20 dwellings. Subject to form, character and servicing constraints. 2.2.1.2 The policy wording goes on to say that whilst the development boundary has been drawn to include the main built form of the village and allocated land:- "There is an opportunity for limited infill development on Intwood Lane". 2.2.1.4 The subject land is on Intwood Lane and thus could be considered as suitable for infill residential development. 2.2.1.5 The land could be considered acceptable because of the following reasons:- • The site is within a single ownership and therefore there will be no landowner issues over the deliverability/sale of the land. • There is a single willing landowner who is looking to achieve planning consent on their land. The land is agricultural (greenfield) and thus there are no major development, constraints including buildings to demolish or contamination.	The Applicant notes the respondent's comments regarding the potential of the site for development.
Norwich Policy Area – (Greater Norwich Development Partnership) 2.2.2.1 The Greater Norwich Development Partnership (GNDP) is currently broken down into two distinct areas as far as proposed housing development is concerned. These are:- 1. Norwich Policy Area (NPA) 2. Rural Policy Area (RPA) 2.2.2.2 The land on Intwood Lane, Swardeston is located within	The Applicant would refer to the Applicant's response to Q1.9.1 of the ExA's First Written Questions submitted at Deadline I (REP1-122) where implications of the Greater Norwich Local Plan, including land put forward as site for potential development are considered.

Interested Party's Written Representation	Applicant's Response
the Norwich Policy Area (NPA) of the Greater Norwich Development Partnership (GNDP). This is the defined area of a radius of approximately 5 miles around the city of Norwich. 2.2.2.3 The reason why this area is considered acceptable is because it is located within 3 miles of the main services and facilities of Norwich.	
National Planning Policy Framework 2.2.3.1 One of the "golden threads" running through central government planning policy, the National Planning Policy Framework is that development should be sustainable. 2.2.3.2 The village possesses a good range of facilities in particular the garage, bakery, farm shop and public house. There are frequent bus services to the city centre and designated cycle routes. 2.2.3.3 The village is located approximately 3 miles from central Norwich and within approximately 2 miles of the Harford Bridge area where there are a range of local services including 2 major supermarkets, a park & ride, a public house, shops and connections to the main arterial routes of the A47, A11 and A140.	. The Applicant notes the respondent's comments regarding the policy framework and its relevance to potential development of the site. Where possible, Hornsea Three has sought to minimise impacts to landowners including those who have identified potential development proposals through site selection/route refinement. Where it has not been possible to avoid sites with genuine potential, the Applicant has sought to engage with the relevant landowners to discuss a voluntary agreement. In the event that it is not possible to enter into a voluntary agreement with relevant landowners, compensation will be payable in accordance with the statutory compensation code. Further information is set out in paragraph 11.2 of the Statement of Reasons [APP-032].
Conclusion 3.1 It is our client's belief that the Orsted proposal fails to consider the development potential for this part of Greater Norwich. We believe that the cable route will potentially sterilise an important development area and compromise any potential layouts. 3.2 We believe the site has clear potential for future development as it is deliverable, sustainable and consistent with local and national planning policy. Orsted have refused to acknowledge this. 3.3 Our client respectfully requests that the points contained in this statement are fully considered within the examination process.	The Applicant has responded to the individual points of this representation above. Discussions are ongoing between the Applicant and the landowner regarding the potential loss of development and the Applicant is seeking to enter into a voluntary agreement that makes provision for future development. Should compulsory powers be used in the absence of a voluntary agreement there are provisions for dealing with development land in the Compensation Code. Further information is set out in paragraph 11.2 of the Statement of Reasons [APP-032].

Land Interest Group (REP1-066) and National Farmers Union (REP1-080)

2.29 This response extends to the written representation (REP1-066) submitted on behalf of the 'Land Interest Group' (LIG) which comprises the following parties:

- Hornsea Three Agents (agents acting for NFU members and their clients in respect to Hornsea Project Three) which comprise:
    - Savills
    - Strutt and Parker
    - Bidwells

- Irelands
- Brown & Co; and
- Cruso and Wilkin.
- National Farmers Union (REP1-080)

2.30 It also constitutes the response to the following parties who submitted a copy of the Land Interest Group written representation at Deadline 1, these comprise:

- Woodlands Farm REP1-008;
- Easton Estate, Honingham Aktieselskab REP1-009;
- Simon Back REP1-010;
- WJF Ross Ltd REP1-013 & 1-081 (identical representation);
- Trustees of Salle Park Trust REP1-016;
- Trustees of Stinton Hall Trust REP1-018;
- Trustees of Sir Charles Mott Radcliffe Will Trust REP1-019;
- Trustees of J S Mott Will Trust REP1-021;
- Taylor Wimpey (East Anglian) Ltd REP1-025;
- Trustees of the B E Brooks 1983 Settlement REP1-026;
- The Rampton Property Trust REP1-028;
- The Trustee of the H G Back Settlement REP1-029;
- The Trustee of the B E Bulwer-Long Settlement REP1-030;
- Sir Edward Evans-Lombe REP1-033;
- Sir John White and Kyle White REP1-035;
- Simon Moores REP1-036;
- Richard Gordon REP1-047;
- R Watkinson REP1-050;
- H T Darling REP1-110;
- G.W. Harrold & Partners REP1-115;
- Diocese of Norwich REP1-120;
- Honingham Aktieselskab REP1-067;
- Ebony Holdings REP1-068;
- Brown & Co REP1-069 (the Applicant suspects this is an error and should be a representation on behalf of a client);
- Nicholas Evans-Lombe REP1-071;
- R Buxton REP1-072;
- R Youngs REP1-073;
- Nethergate Farms Partnership REP1-077;
- Trustees Educational Foundation of Alderman John Norman REP1-078;
- Mr and Mrs Darling REP1-082;
- Mrs C Barratt REP1-084;
- Mrs S Bulwer-Long REP1-086;
- Mrs Julie Dacre REP1-088;
- Melton Harrold, Sharon Harrold and Penny Jane Oakes REP1-092;
- H Jones (Farms) Ltd REP1-103;
- Great Melton Farm Limited REP1-109;
- Easton and Otley College REP1-128;
- D N Gray & Co REP1-185;
- Charles Watt REP1-193;
- Beckhithe Farms Ltd REP1-200
- Ms K Paul, Mr D Brown & Mr W Barr (Trustees of the Gurloque Settlement) REP1-250.

Summary

2.31 The written representation addresses matters regarding consultation and engagement through the pre-application and post-application phase; the case for compulsory acquisition; the transmission system (HVAC / HVDC); construction programme, phasing and funding; cumulative effects with Norfolk Vanguard and Norfolk Boreas; and specific points relating to joint bays and link boxes; field drainage; soil management; water supplies; flood risk; and dust and irrigation. The written representation also addressed points relating to access to the Order Limits; to how landowners and occupiers would access land severed by the construction works; and to the restrictive rights included within Option and Lease agreements/ the DCO.

2.32 The Applicant has responded to each point raised in the written representation, primarily through referring to the Applicant's Response to Relevant Representation RR-146 submitted at Deadline 1 (Annex 12 of REP1-131). It is noted that the Applicant continues to discuss terms of voluntary agreements with the Land Interest Group in respect of many of the matters raised.

2.33 The Applicant would refer to the Applicant's Compulsory Acquisition Schedule submitted at Deadline 1 (REP1-134) which comprises an updated version of Appendices A - D of the Statement of Reasons (APP-032) and contains an update on the status of discussions with relevant landowners and occupiers. The Applicant is hopeful that the necessary land rights can be acquired by voluntary agreement.

Response to Land Interest Group (REP1-066) and National Farmers Union (REP1-080)

Interested Party's Written Representation	Applicant's Response
1 Introduction 1.1 This is the Written Representations of the National Farmers Union ("NFU") and the Hornsea Three Agents (agents acting for NFU members and their clients on this project.) The agents represented are Savills, Strutt & Parker, Bidwells, Irelands, Brown & Co and Cruso & Wilkin (henceforth known as the Land Interest Group (LIG) to the application for a Development Consent Order by the Secretary of State for Transport identified as the Hornsea Project Three Offshore Wind Farm Project order. 1.2 The objectives of the NFU are to champion farming in England and Wales and to provide professional representation and service to its members. 1.3 The matters raised in this Written Representation are matters not only of concern to the farming owners of agricultural land affected by this DCO, but also of concern to, and raise points of principle that will affect, members of the NFU having farm holdings that may be affected by similar Offshore Wind Farm schemes.	The Applicant notes the introduction provided by NFU and would refer to Annex 12 of the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-146.
2. Details of Landowners 2.1 As noted above this written representation is made by the NFU and Hornsea Agents on behalf of considerable number of landowners and occupiers affected by the proposed scheme. 2.2 Details of which landowners and occupiers are represented by which firm of land agents and NFU membership can be provided on request.	Noted.

Interested Party's Written Representation	Applicant's Response
2.3 This written representation does though focus on certain key issues which will affect all landowners.	
3.0 Consultation and Engagement 3.1 There was a lack of constructive and proactive face to face meetings with Orsted and their agents. Some meetings have been held but the detail required by landowners had not been available. For example details on timings of construction to be able to understand the impact on the cropping rotation of the farm or the commercial shoot over the winter months. Therefore it was not possible to discuss all aspects of the scheme until the end of August/beginning of September 2018. 3.2 Orsted and their agents have been meeting LIG but due to the lack of specific information available earlier in the year progression in negotiations on a voluntary basis has only happened in the last three months. 3.3 It is only now that Heads of Terms are finally being agreed as at 31st October 2018. As yet Heads of Terms have not been sent out for signing. 3.4 Orsted has only recently sent out a draft option and lease to the agents. The NFU had requested to see the documents at numerous meetings. The draft option was sent out on 1st October 2018 and the draft lease on the 15th October 2018. It is imperative that the NFU and agents acting (LIG) see these documents to make sure that the terms are reasonable and reflect the Heads of Terms agreed to date. 3.5 The time period where incentive payments are offered must be long enough for LIG to look at the terms offered in detail and negotiate. Orsted must not force the hand of landowners.	The Applicant would refer to Annex 12 of the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-146. The Applicant would also refer to the Applicant's Compulsory Acquisition Schedule submitted at Deadline 1 (REP1-134) which provides an updated version of Appendices A - D of the Statement of Reasons (APP-032). The Applicant considers that significant progress has been made since the submission of the DCO Application. The agreed Heads of Terms were sent to landowners in the week commencing 5 November 2018.
4.0 Compulsory Acquisition and Compelling Case Requirement 4.1 The DCO will contain powers to acquire compulsorily so much of the Order land as is required for the authorised development, or to facilitate or is incidental to it. 4.2 Further, the guidance as to negotiations either before or parallel with formal processes may well give rise to a "legitimate expectation" that such will occur, and a failure to conduct such negotiations deprives landowners of the benefit that negotiations may have brought, especially in relation to the where different locations and lesser rights might have been achieved. 4.3 The NFU and the land agents LIG believe that meaningful negotiations have only taken place in the last three months alongside the formal procedures for compulsory purchase.	The Applicant would refer to Annex 12 of the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP-131) which provides a full response to RR-146. The Applicant would also refer to the Applicant's Compulsory Acquisition Schedule (REP1-134) submitted at Deadline 1 which provides an updated version of Appendices A - D of the Statement of Reasons (APP-032). The Applicant has made reasonable attempts to negotiate with landowners and will continue to do so.
5.0 HVAC v HVDC Cables 5.1 It was made clear at the statutory consultation carried out at the end of November 2017 that Orsted would be applying for a DCO on both HVAC and HVDC cables. This will involve building a booster station or converter substation. 5.2 It has been highlighted that the use of DC technology for offshore windfarms is still maturing and that there are certain risks by only taking forward DC technology. If Orsted could confirm that they were taking forward DC technology this would greatly reduce	The Applicant would refer to Appendix 22 to Deadline 1 – Transmission System (HVAC/HVDC) Briefing Note (REP1-164).

Interested Party's Written Representation	Applicant's Response
the impact on land operations and farm businesses as the easement width required will be less and it is likely that no link boxes will be required. Landowners and their agents have been asking for information from Orsted to confirm why they cannot use DC technology and the only reasons forthcoming have been cost, risk and the length of the scheme. There is confusion out there with landowners as another developer Vattenfall who are also proposing a NSIP project the Norfolk Vanguard and Boreas Cable Project have confirmed that they will be using DC technology.	
6. Construction and Funding 6.1 Orsted have stated that they will need at least 8 years to lay all the cables and that this would be carried out in two phases. Orsted first stated that construction works of two phases of two and half years with a three year gap in between would be required and if the project was constructed in one phase with high intensity it has been stated that it would be possible to do this with a minimum duration of three years. Further to negotiations Orsted have now confirmed that they will use reasonable endeavours to complete construction works within a period of 2 years from the date of entry of each phase. 6.2 Two of the reasons given for a two phase programme are constraints in the supply chain and/or the timing of auctions for the Government's Contract for Difference process which offshore wind farms currently rely on to secure a price for the electricity produced by a project. Therefore Orsted are indicating that they do not have the necessary funding to build the project at the present time in one phase. We have grave concerns that Orsted do not have the funding to deliver the second proposed phase of the project and so should not be applying for this phase of the project within this current DCO application.	The Applicant would refer to Annex 12 of the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-146.
6.3 Since the outline representation was submitted Orsted have confirmed that if they are certain by having either secured a Contract for Difference (CFD) or funding via an alternative replacement government backed scheme within 12 months of securing a CFD for the first phase that the second phase will go ahead and Orsted will install ducts. 6.4 Landowners and their agents have been asking Orsted to lay the cables in ducts from the start of the project and not to lay the cables in open trenches. LIG has now received verbal confirmation that they will lay all cables in ducts. This is essential as this will greatly reduce the time period for construction and so greatly reduce the impact on farm businesses.	The Applicant would refer to the Applicant's Comments on Relevant Representation RR-006 submitted at Deadline 1 (REP1-131) and the wording added to paragraphs 1.1.1.6 and 1.1.1.7 of the Outline CoCP (REP1-142) in respect to the commitments on ducting.
7. Cumulative Impact 7.1 Cumulative Affect Assessment has been addressed in the PIER but the detail is exceedingly broad and no mention of Vattenfall Boreas scheme only Norfolk Vanguard. These are two major schemes affecting landowners and occupiers which are programmed to be constructed at approximately the same time but one is running north to south and the other east to west. Therefore, greatly affecting the number of landowners affected and taking more land out of agricultural production than is	The Applicant would refer to Annex 12 of the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-146.

Interested Party's Written Representation	Applicant's Response
necessary.	
8. Jointing bays and Link Boxes 8.1 It is understood from other projects that 'Jointing Bays' should be all underground and will not interfere with agricultural operations. 8.2 It is understood that link boxes will be needed if the cables are HVAC cables and they are normally placed at least every 600 to 800 metres on a cable run near to the jointing bays. No clarification has been received on how many link boxes will be needed at the end of every run. Some link boxes will stand proud above ground level and Orsted have now confirmed that some will be 200mm below surface level. This will allow some machinery to run over the top of the link boxes but they will still greatly interfere with agricultural cultivations and are a hazard to farm machinery. It is extremely important to have further design information on link boxes and the siting of them. This includes any link boxes to be located in a cluster and how will they be marked/identified/fenced. The preference is that all link boxes are located within fence boundaries.	The Applicant would refer to Annex 12 of the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-146.
9. Field Drainage 9.1 Land drainage is one of the main issues which landowners and occupiers are concerned about on this scheme and as at 31st October 2018 detail in regard to how land drainage will be dealt has been agreed in the Heads of Terms. 9.2 There is concern though that this detail is not included in the outline Code of Construction (CoCP) which has been submitted with the DCO application. The NFU and LIG would want to see the wording that has been agreed in the Heads of Terms set out in the Code of Construction as it is our understanding that this document will be binding under the DCO if the DCO is approved. This is important as the Heads of Terms are not binding on either party. 9.2 Presently the only detail incorporated in the outline CoCP is at 6.8.1.6 where it is stated that drainage systems will be maintained. 9.3 It is only in the last few weeks that the draft option and lease documents have been made available to the NFU and LIG. Discussions are ongoing in regard to the wording to be incorporated from the Heads of Terms on field drainage.	The Applicant would refer to Annex 12 of the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-146 and the wording added to paragraphs 6.4.1.9 and 6.4.1.14 of the Outline CoCP (REP1-142) in respect to the commitments on drainage. However, the Applicant does not consider it appropriate or necessary for all of the additional and specific commitments being offered to certain landowners in the voluntary agreements to be included in the Outline CoCP.
10. Soils 10.1 As above the treatment and reinstatement of soil during and after construction is one of the main issues of concern. Limited detail has been provided to landowners and occupiers. LIG would like to see the wording on how soils will be treated in the soil management strategy document and hopes that this will expand on how it has been stated soils will be treated at 6.8.1.1 in the outline CoCP. 10.2 Soil aftercare has been referenced in 6.8.1.1 in the CoCP stating that to enable land to be handed back to the farmer in a suitable condition appropriate soil aftercare will be implemented. There is no detail as to what the soil aftercare may include and no mention of a soil statement/record being recorded of the soil conditions prior to works starting. This statement/record would	The Applicant would refer to Annex 12 to the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-146. The Applicant does not consider it appropriate or necessary for all of the additional and specific commitments suggested in 10.3 of the representation being offered to certain landowners in the voluntary agreements to be included in the Outline CoCP.

Interested Party's Written Representation	Applicant's Response
provide a target to be achieved by the correct soil reinstatement and aftercare. Without the soil statement/record it is impossible to know what measures will need to be carried out to bring the soil back to its condition and quality before works started. 10.3 Discussions are ongoing in regard to the carrying out of a soil statement and soil aftercare plan and the wording of such to be included in the option and lease. LIG would like to see that the Soil Management Plan should include as a minimum the following: • A schedule of aftercare maintenance will be agreed between the undertaker and landowner and (if relevant) the occupier for each landholding. The schedule of aftercare maintenance will define a target specification to include soil condition, soil nutrient levels and organic content. • Soil testing, appropriate to the target specification, will be undertaken for a period of up to five years following the completion of the construction work until the target specification is met. The target specification will be informed by the pre-entry record of condition for each farm holding along with information received from the landowners or tenants on cropping yields. If the target specification is met within the 5 years then the aftercare will be completed and signed off by a final report to determine the final handover. • If the target specification is not met within 5 years a further period will be agreed. The schedule of aftercare maintenance will highlight what action will be undertaken by the landowner or occupier to mitigate any loss and to improve the soils, at the cost of Orsted where appropriate.	
11. Water Supplies 11.1 Presently it is stated in the outline CoCP at 6.8.1.6 that water supplies will be maintained and reinstated wherever reasonably practicable during the construction process. It is imperative that an alternative supply of water for the period which it is affected must be supplied and the cost of this provision met during construction. Further a permanent water supply must be provided by the end of the construction period. The water supply may be for livestock or irrigation of crops. This must be detailed in the final CoCP. 11.2 Discussions are ongoing to agree this wording in regard to water supplies in the option and lease.	The Applicant would refer to the Statement of Common Ground between Hornsea Project Three and the Environment Agency which addresses matter relating to private water supplies. The Applicant also refers to the revised wording in paragraph 6.8.1.6 of the revised Outline CoCP (REP1-142). Matters relating to existing field drainage are addressed in the point above.
12. Flood Issues 12.1 No details have been provided to landowners and occupiers on how any increase in surface run off of water from the haul road or the construction compounds will be dealt with during construction. Therefore there is concern that retained land may flood during the construction works.	The Applicant would refer to Annex 12 of the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-146.
13. Dust/Irrigation 13.1 Clarification is needed on how practical issues like dust will be controlled during construction and how can the effect on irrigation be minimised?	The Applicant would refer to Annex 12 to the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-146.
14. Access routes to the Order Limits 14.1 At the present time it has been agreed with Orsted that a right	The Applicant would refer to Annex 12 to the Applicant's Comments on Relevant Representations submitted at Deadline

Interested Party's Written Representation	Applicant's Response
of access over the Landowners land from the nearest public highway or any adjoining landholding to the Order Limits will be agreed from time to time. Landowners would like more certainty and would like Orsted to agree the routes of access now needed for construction purposes to lay the cables. These routes also need to be stated and confirmed in the CoCP. Landowners would like to see the routes highlighted and agreed on plans.	1 (REP1-131) which provides a full response to RR-146. The Applicant does not consider it necessary or appropriate to include access route plans for every landowner in the CoCP.
15. Access to land and the Haul Road 15.1 Insufficient detail has been provided as to how landowners and occupiers are to access land severed by the construction works and as to whether landowners will be able to access the haul road during construction. It has been stated in the outline CoCP at 6.8.1.4 and 6.8.1.5 that farm accesses will be maintained, wherever reasonably practicable between fields within a farm holding. Further accesses across individual fields will be maintained. General details of how accesses will be maintained for every day agricultural operations needs to be provided.	The Applicant would refer to Annex 12 to the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-146 and the Applicant's Response to the ExA's First Written Question Q 1.9.13 (REP1-122).
16. Restrictive Rights 16.1 Concerns have been raised to Orsted over restrictive rights included in the Option and Lease. In the Option the restrictions are applied to within the Option Site. Clarification is required as to the area within the Option Site but LIG would expect this to be no wider than the working area needed to lay the cables. The restrictions should not apply to the Landlords Estate. 16.2 The restrictions highlighted in the Option at 3.9.1. and 3.9.2 and within the Lease at 4.2 and 4.3 should all be without prejudice to the ability of the Landlord and any occupier to carry out normal agricultural operations. At the present time it is stated that nothing can be planted which would mean a landowner having to request permission from Orsted every time a new arable crop was to be drilled. 16.3 Further as agreed in the Heads of Terms it has been agreed that a landowner can install a hardcore access track or road with a maximum depth of 300mm within the final lease area subject to notification to Orsted. This wording needs to be agreed with the Option and Lease. 16.4 LIG would expect to see this wording for restrictive rights agreed within the DCO.	The drafting of the restrictive covenants to be included in the voluntary agreements are still being negotiated between landowners and Hornsea Three. The Applicant does not consider that comments on the drafting of the voluntary agreements are a matter for the Examination. The Applicant would refer to section 6.3.3 of the Statement of Reasons (APP-032) which sets out the justification for the imposition of restrictions in the DCO.
17.0 Request to Attend Hearings and make Representations 17.1 LIG requests to make oral representations at the compulsory acquisition hearing or any other hearings which may be held. 17.2 LIG represents 50 clients who own or lease land affected by the DCO. A full list of names and addresses are available if requested. Each landowner or occupier has submitted a written representation highlighting specific issues to their business if applicable and has made reference to this written representation which highlights the main issues of all landowners concerned.	Noted.

The National Trust (REP1-074)

Summary

2.34 The National Trust has submitted one written representation at Deadline 1 (REP1-074) which focuses on concerns regarding the potential impacts at the former Oulton airfield as a result of the main construction compound proposed by Hornsea Three.

Response to the National Trust

2.35 The Applicant refers to Appendix 20 Main Construction Compound Briefing Note to the Applicant's Response to Deadline 1 (REP1-176), which provides an update on the access strategy for the main construction compound and also summarises the effect of Hornsea Three on the Blickling Conservation Area. These matters have been discussed with Broadland District Council through the Statement of Common Ground (REP1-099).

Interested Party's Written Representation	Applicant's Response
The National Trust's Land Ownership & Interest The National Trust was founded in 1895 as an independent charity to hold and manage, in perpetuity for the benefit of the nation, countryside and historic buildings in England, Wales and Northern Ireland. The Trust fulfils its statutory responsibilities as laid down in the National Trust Acts, through ownership and direct management of the properties in its care. It is within the remit of the National Trust to comment where development proposals affect our land or property, or other special places. The proposal would not impact directly on land owned or managed by the National Trust, but the proposed main construction compound at Oulton Airfield would abut land owned by the National Trust. Copies of maps have been enclosed with this letter. The National Trust has significant landholdings in Norfolk which attract large numbers of visitors each year who come to enjoy the heritage, wildlife and leisure opportunities that they provide. In the vicinity of the proposed construction compound the National Trust owns part of Oulton Airfield, the Grade I Listed Blickling Hall and its Grade II* Registered Park & Garden. Blickling Hall is a hugely popular tourist visitor destination. The Trust's ownership also extends to the wider Blickling estate which includes land and property at Oulton Street village. Within the parish of Oulton the National Trust owns land to the north and east of the old airfield and lets a number of residential properties in the village including the Grade II Listed Malthouse Farmhouse. At Malthouse Farm the National Trust also provides accommodation for several small businesses including the National Trust Textile Conservation Studio. Concerns regarding the proposed compound are set out below.	Noted.
Land at Oulton Street – Highway Impacts It is understood that the main compound at Oulton Street would operate as a central logistics base for the onshore construction works, and would house the central offices, welfare facilities, and provide a security hub, central health and safety monitoring, and equipment stores, as well as acting as a staging post and	The Applicant would direct the Examining Authority to Section 5, paragraph 5.12.et seq, of Appendix 20 Main Construction Compound Briefing Note to the Applicant's Response to Deadline I (REP1-176), which summarises the effect of Hornsea Three on the Blickling Conservation Area. Annex A and Annex B of the same document provide details of

Interested Party's Written Representation	Applicant's Response
secure storage for equipment and component deliveries. It is noted that three other sites for the construction compound were discounted due to the adequacy of the access for heavy goods vehicles, distance from the strategic road network and absence of hardstandings. The Oulton Airfield location was put forward and chosen as the preferred option following the publication of the Preliminary Environmental Information Report (PEIR). It is stated that the chosen site has direct access from the B1149. The airfield is located on 'The Street' which is accessed from the B1149, however, this is a rural road and the National Trust questions the appropriateness of this for use by the construction traffic. Information within the application estimates the potential number of vehicle movements at the main compound at Oulton Street, would equate to a peak of 130 daily staff vehicle movements and a peak of 118 daily HGV movements. The applicant also acknowledges that this is a "narrow single carriageway". Furthermore, as indicated in the submission, it is located approximately 3.5 km to the east of the main ECR. The proposal may therefore result in a significant number of transport movements, including heavy goods vehicles, in a single day. Furthermore, construction could last a number of years. The submission indicates that under a two-phase programme scenario, the sum of the durations of each phase would not exceed eight years assuming gaps between the phases of up to 3 years. Under a single-phase construction programme, the total duration of the onshore cable corridor construction would not exceed six years. The increase in traffic and duration is likely to have an adverse impact upon the character of this narrow, rural road and result in disruption which would adversely impact upon the amenities of those who live in the village. The applicant acknowledges that there are concerns regarding the use of this site specifically in terms of access but considers that these can be overcome through suitable traffic management measures. Details of such measures have not been included at this stage. It is stated that these measures will be developed as part of the subsequent Construction Traffic Management Plans (CTMPs) secured prior to the commencement of works and activities at the main compound, when the scope of the use of the main construction compound by the principal contractor is known. It is also stated that the traffic management measures may involve diversion routes. The National Trust is concerned about the impacts that the level of traffic using this rural road and the impacts the traffic management measures could have on its tenants, staff and visitors who use this road. The lack of detail and uncertainty at this stage about the traffic management measures gives cause for concern. The proposal also has the potential to cause disruption for a number of years. Should this location be considered acceptable as a construction compound it is important that any construction traffic accessing this compound is aware that it should be accessed from the B1149 and not from a northerly direction where it would pass	the developing access strategy. Although the Applicant considers that significant progress has been made in demonstrating a workable access strategy for the main construction compound, it is acknowledged that the measures set out in Annex A and B of REP1-176 are part of ongoing discussions with NCC (as local highway authority) and other interested stakeholders (including Broadland District Council and Oulton Parish Council). Notwithstanding this, the Applicant is confident that a solution acceptable to NCC can be reached during examination such that it will be included through an updated version of the Outline CTMP (APP-176). This will be secured under requirement 18 of the draft DCO (Version 1, as submitted for Deadline 1) which states that a CTMP must be agreed by the relevant planning authority prior to the commencement of construction. The status of discussions regarding the main construction compound are reflected in the Statement of Common Ground between Hornsea Project Three and Norfolk County Council (REP1-232), as well as between Hornsea Project Three and Broadland District Council as submitted at Deadline 1 (REP1-099) In addition, the Applicant would direct the Examining Authority to the Applicant's Comments on Stakeholder Responses to the ExA's First Written Questions submitted at Deadline I (REP1-122), in particular the response to ExA Question 1.8.9.

Interested Party's Written Representation	Applicant's Response
through the village and could adversely impact upon amenities.	
Land at Oulton Street – Heritage Impacts The National Trust's landholdings in the vicinity of the construction compound site are outlined above. In addition, Oulton Street village is within the designated boundary of the Blickling Conservation Area and as a key land and property owner the National Trust therefore plays an important role in upholding the historic integrity of the village as a designated heritage asset. The compound would be located on part of the former RAF Oulton airfield which was one of 16 wartime built airfields in Norfolk used by the RAF during WWII. The former RAF Oulton is inextricably linked with Blickling Hall (Grade 1 Listed), which provided further accommodation for the RAF and was perhaps the most impressive country house in the county to serve as a mess site for an operational airfield. Within the estate stand a number of "temporary" buildings that provided accommodation for personnel including barrack blocks and the station cinema and gymnasium. Blickling also houses a museum dedicated to the units at RAF Oulton and is a pilgrimage for those that served there and their families. Many more people also visit the RAF Oulton museum at Blickling Hall each year and are interested to see more of what remains of the air base. The airfield is therefore already a valued heritage asset, albeit undesignated, and it is more than possible that appreciation of its significance will continue to increase over time. Appreciation of the value of heritage changes over time and WWII sites are still relatively undesignated despite representing a fascinating memorial to a hugely significant period of the history of our Country. Unusually the three intersecting concrete runways of Oulton remain substantially intact, as does the perimeter track which encompassed them and provided access for the aircraft. With the exception of Foulsham near Fakenham, the runways and tracks at Oulton are the most complete surviving examples of a wartime built RAF airfield in the county. In terms of its surviving buildings again a similar number survive to those elsewhere including hangars. Operationally too, Oulton was unusual in that during 1944 a combined RAF and USAAF unit operated radio countermeasures from there. Today only the fragmentary remains of RAF wartime built airfields survive, across East Anglia. None survive intact, but the Oulton airfield site, along with its domestic accommodation provides sufficient tangible evidence to appreciate the scale, and ingenuity of their construction and the operations undertaken from them. Oulton Airfield is therefore a significant if undesignated heritage asset and should be recognised as such. The airfield should not be looked upon as a negative influence on the overall character of the area but is an important part of the history of Oulton and Blickling. Unfortunately the significance and character of the airfield, its historic relationship to the village and the Blickling estate and thus the contribution it makes to the setting of the Blickling	The Applicant notes the National Trust is a key land and property owner in the Blickling Conservation Area, including several properties within Oulton Street village. The Applicant acknowledges the historic relationship of RAF Oulton to Blickling Hall, however, as detailed in the Applicant's comments on Stakeholder Responses to the ExA's First Written Questions 1.8.8, there has been considerable degradation of the airfield since the end of the Second World War. Whilst the airfield can be considered as an undesignated heritage asset, its significance has been much reduced by the loss of many of its original features. The former RAF Oulton falls outside of the designated boundary of Blickling Conservation Area and there is limited opportunity for the public to visit the remaining features as there are no public rights of way (other than roads) in the immediate vicinity of the airfield. The Applicant would direct the Examining Authority to Appendix 20 Main Construction Compound Briefing Note to the Applicant's response to Deadline 1 (REP1-176), which summarises the proposed use of the main construction compound and confirms that there would be no intrusive works. In their Statement of Common Ground, Broadland District Council has agreed with the conclusion of Volume 3, Chapter 5: Historic Environment of the Environmental Statement (APP-077), which states that no significant effects would occur on the setting of Blickling Conservation Area from the use of the main construction compound (REP1-099).

Interested Party's Written Representation	Applicant's Response
Conservation Area have not been acknowledged within the application. The operation of this site as the main compound with the level of facilities and transport movements outlined above should be considered in the context of the historic environment but is absent from any assessment in Volume 3, Chapter 5 (Historic Environment) of the Environmental Statement. There is reference to the comments of Norfolk County Council which states The extended accesses area includes the only surviving aircraft dispersal area associated with former Royal Air Force Oulton Airfield. The surviving Second World War concrete hard-standings should be retained and their form not altered. The same is true of the section of former runway intended for storage. The response to this by the applicant was that 'The comment is noted'. There is no evidence to suggest that the applicant has carried out a thorough appraisal to ensure any harm caused to the heritage asset of the airfield is minimised. The National Trust is supportive of the need for renewable energy but in this particular case, we are concerned that the site chosen for the compound would cause harm to the undesignated heritage asset of the airfield and erode the ability to appreciate the contribution of the airfield to the historic environment, including its link with Blickling Hall. The proposed use of the site and scale of the operation would neither preserve nor enhance the character of designated Conservation Area. Furthermore, concern is raised that the B1149 is not capable of accommodating the transport movements proposed without an adverse impact upon other users of this road and the character of the area. I would be grateful if the issues set out above would be taken into consideration when determining the application.	

No to Relay Stations (REP1-075)

Summary

2.36 The community group, No to Relay Stations (N2RS), have submitted one written representation at Deadline 1 (REP1-075). The written representation raised concerns regarding transmission technology and impacts from the onshore HVAC booster station.

Response to No to Relay Stations

Interested Party's Written Representation	Applicant's Response
1. Background 1.1 N2RS is a local campaign action group with approximately 1000 supporters based in North East Norfolk. It was formed in April 2017 amidst concerns about the proposed onshore infrastructure planned to support Vattenfall's Norfolk Vanguard and Boreas offshore wind farms. 1.2 N2RS realised the importance of monitoring Orsted's Hornsea Three offshore wind farm project because it presented similar challenges to those communities affected by Norfolk	The Applicant would refer to the Applicant's Comments on Relevant Representation RR-026 submitted at Deadline 1 (RR-REP1-131) and to Appendix 22: Transmission Technology (HVDC/HVAC) Briefing Note to the Applicant's response to Deadline 1 (REP1-164).

Interested Party's Written Representation	Applicant's Response
Vanguard and Norfolk Boreas. The potential cumulative effect of all projects to the detriment of the Norfolk landscape and the livelihoods of many residents gave further impetus to the campaign. The absence of a government led strategic plan to lend some coherence and co-ordination to both projects only served to increase levels of anxiety. In addition, the potential impact of the projects had not been communicated to members of the public in such a way as to alert them to the scale and impact of the onshore structures. 1.3 N2RS made initial representations regarding Hornsea Three by attending and speaking at the North Norfolk District Council (NNDC) Cabinet Meeting on September 5th 2017. The key submission was that NNDC should take account of all the available evidence on the environmental impact of HVAC and HVDC systems and to adopt the principle of recommending the least environmentally damaging option. NNDC reported to the inspectorate in July 2018 that it concurred with this principle judging that HVDC would have the least damaging impact on the district of North Norfolk particularly as it would negate the need for the booster station (cable relay station) near Little Barningham. 1.4 With limited resources, N2RS prioritised its attention on the HVAC v HVDC issue. During an intense and high-profile campaign, it became clear that local people were largely unaware and uninformed about the detail of the offshore wind energy systems. However, once the information had been publicised and discussed in local meetings, the majority of people saw HVDC as the only option. Vattenfall came to recognise the strength of public opinion against HVAC on environmental grounds and it made a corporate decision prior to making its formal submission to the Inspectorate to commit to the more environmentally friendly HVDC technology and to HDD methodology for its cabling. As a result, booster stations will not be required for Norfolk Vanguard and Norfolk Boreas and the original width of the cable corridor will be more than halved. 1.5 Vattenfall's decision removed - at a stroke - a great deal of public anxiety and uncertainty. Whilst there are clearly still many extremely important issues to resolve for some communities with respect to onshore development and the implementation phase, nevertheless its decision not to use the Rochdale Envelope approach to delay making a choice has been warmly welcomed. 1.6 It is a particular disappointment therefore that Orsted continues to pursue the Rochdale Envelope approach with Hornsea Three (in which it is further advanced in the planning process than Vattenfall) for reasons that some communities will feel are dubious and not in the spirit of the original intention of it. We note that the CPRE have drawn attention to this point about the Rochdale Envelope in their July 2018 submission and we trust that the validity of using the Rochdale Envelope will be a particular line of enquiry for the Inspectors.	
2. The Orsted Proposal and HVAC Booster Station	The method used for preparing the wirelines and

Interested Party's Written Representation	Applicant's Response
2.1 N2RS has consulted with local organisations and has sought to understand as far as possible the issues in relation to Hornsea Three. Members of N2RS are not experts; they represent ordinary residents and look at the project from a layman's point of view. 2.2 Members of N2RS visited the site of the proposed booster station near Little Barningham but found it difficult – on a number of levels - to reconcile the actual landscape with the photomontages supplied by Orsted. N2RS assumes there are national standards for the way these images are reproduced for the purposes of consultation but in our view the photomontage technology falls short and does not accurately represent what the human eye sees. 2.3 (This same problem was encountered during the Norfolk Vanguard consultation, where with the benefit of local knowledge, we could compare the structures visualised with familiar landmarks and farm machinery of known height and we concluded that the photomontages did not show the true scale of the proposed structures and its likely impact on Norfolk's unique landscape.) 2.4 In addition to the poor quality of the visuals, there are no clear pictures of what a proposed booster station near Little Barningham would actually look like when constructed, nor any information on what the structure would sound like or what it would look like at night - a point made by Friends of North Norfolk in their submission in July 2018. N2RS also noted the comment made by Natural England in its recent submission in July 2018 which drew attention to the absence of information as to the night time impact of a booster station and whether or not lights will be used in an area where we understand there to be little light pollution. 2.5 N2RS supports the view expressed by Edgefield Parish Council in their submission in July 2018 that the booster station would be clearly visible from the parish. It exemplifies the lack of trust felt by residents with regard to the choice of site, the use of a booster station and importantly, the unconvincing comments regarding mitigation. 2.6 Taking all these points into account and given that these photomontages are designed to show the worst-case scenario (i.e. HVAC) it renders this aspect of the consultation somewhat meaningless. 2.7 Note: On our visit we found the area to be typical of the attractive Norfolk landscape that appeals both to locals and tourists, something not always apparent from the applicant's own images – See photographs taken by N2RS on 31.10.18 Appendix 1.	photomontages is described in Volume 6, Annex 4.1: Landscape and Visual Impact Assessment Methodology (APP-142) at paragraphs 1.1.10.1 and Appendix A. The method followed is in accordance with national best practice guidance including: Landscape Institute Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment March 2011, Landscape Institute Guidance Note 02/17 Visual Representation of Development Proposals March 2017; and Scottish Natural Heritage Visual Representation of Wind Farms Guidance (2017). The Applicant would refer to the Applicant's Comments on Relevant Representation RR-026 submitted at Deadline 1 (REP1-131) which confirms that the assessment of landscape and visual impacts of the onshore HVAC booster station was supported by a set of visualisations of the HVAC booster station provided in Volume 6, Annex 4.5: Photograph Panels, Wirelines and Photomontages [APP-146]. The wirelines presented in APP-146 represent the maximum design scenario (as described in Table 4.6 of APP-076) i.e. the greatest height and scale, whilst the photomontages represent an indicative design. The baseline photographs used to formulate these images were taken from viewpoints considered to be representative, and for the HVAC booster station were discussed with North Norfolk District Council and agreed with Norfolk County Council (as described in Table 4.4 of APP-076). NNDC's Local Impact Report November 2018 submitted at Deadline 1 states that *"NNDC consider that the selected viewpoints and visualisations, as set out in Appendix A of Volume 6, Annex 4.1: Landscape and Visual Impact Assessment Methodology and Volume 6, Annex 4.5: Photographs, Wirelines and Photomontages, provide a sufficient basis on which to assess the likely landscape and visual impact."* (Paragraph 7.6.) It is important to note that the indicative design photomontages were provided for illustrative purposes only, and the final design of the onshore HVAC booster station will be secured through Requirement 7 of the dDCO (APP-027). Requirement 7 of the draft DCO [APP-027] requires that details including the layout, scale, finished ground levels, external appearance, materials, access and circulation areas, and timetables for the landscaping works at the HVAC booster station will be submitted to and approved by the relevant planning authority prior to commencement of construction. However, the Applicant would note that this final design will need to be within the confines of the maximum design scenario, i.e. it couldn't be any larger than the maximum dimensions presented in the wirelines as show in APP-146. The above aligns with the Rochdale Envelope approach and thus, the Applicant considers the approach taken appropriate for the purpose of consultation and assessment of potentially significant effects within the EIA.
3. Timescales 3.1 The prolonged timescales for implementation of Hornsea Three (at least 8 years) have not been a particular focus for N2RS but with so many of our supporters whose livelihoods are associated with the tourism and retail industry and the wider	The Applicant would refer to the Applicant's Comments on Relevant Representation RR-015 (REP1-131) which provides commentary on the construction programme and duration.

Interested Party's Written Representation	Applicant's Response
occupations dependent on tourism, it is right that we add our concerns to those interested parties who have also referred to this in their submissions. The NFU has submitted concerns about this point so we do not feel the need to repeat the obvious disruption here other than to reinforce those concerns.	
4. Coherence and strategy 4.1 N2RS has found the National Infrastructure Planning process to be challenging. Research conducted by the Green Alliance (Opening Up Infrastructure Planning: 2015) calls on Government for a more strategic approach to infrastructure planning. In Norfolk, the community was taken aback when, through the diligence of a few members of the public rather than professional publicity, there was a gradual realisation that the county was about to be criss-crossed by two major projects with some communities inevitably at the crossroads of those two projects facing an appalling and unexpected predicament.	Hornsea Three has, through its consultation material, acknowledged the presence of a scheme being proposed by a different developer. It is noted that, at the early pre-application stages of Hornsea Three, the Norfolk Vanguard/Norfolk Boreas scheme had not submitted an EIA Scoping Report. As additional information became available, Hornsea Three has reported the available information on the proposed routing of the Norfolk Vanguard/Norfolk Boreas project within the appropriate documents including, the Preliminary Environmental Information Report and the Environmental Statement. Discussions with interested parties, including those affected by both Norfolk Vanguard/Norfolk Boreas and Hornsea Three are ongoing (e.g. Norfolk County Council, Broadland District, Parish Councils etc.).
5. Conclusions 5.1 Vattenfall has made a firm commitment to HVDC and, importantly, it has listened to the strongly felt concerns expressed by many people living and working across North Norfolk as a result of our high-profile campaign and the strenuous efforts of many other groups and individuals including local and parish councillors, our MP and other local groups. 5.2 N2RS asks inspectors of Hornsea Three to consider the rationale for Orsted to participate in a co-ordinated and coherent regional approach for Norfolk by aligning its transmission systems with Norfolk Vanguard and Norfolk Boreas and to do so at the earliest opportunity to minimise the uncertainty and anxiety caused by the adoption of the Rochdale Envelope. 5.3 From our scrutiny of the written submissions made to the inspection team so far from statutory and non- statutory bodies, professionals, local experts and other members of the public, it is clear that whilst there are still many crucial issues to be resolved, there is currently a broad consensus in line with our own campaign objectives for Orsted to adopt HVDC and that there are no compelling reasons for Orsted to do otherwise. We stand to be corrected if we are wrong in believing that the majority of people, professional organisations and other representative groups are not promoting HVAC as the better option for this project.	The Applicant has responded to each of the individual points above.
APPENDIX 1 Photos taken by N2RS of the landscape surrounding the proposed booster station site near Little Barningham on 31.10.18 <Photographs not reproduced here, but available in REP1-075>	The appendices provide additional context to the individual matters raised and responded to above. The Applicant would note that baseline photographs and visualisations of the onshore HVAC booster station are provided in Volume 6, Annex 4.5: Photograph Panels, Wirelines and Photomontages [APP-146]. These demonstrate the baseline environment at the onshore HVAC booster station site and have been agreed with North Norfolk District Council, as demonstrated in the Statement of Common Ground submitted at Deadline 2.

National Grid (REP1-076)

Summary

2.37 This response extends to the written representations submitted by Affected Persons as identified in the Book of Reference (APP-033).

Response to National Grid

Interested Party's Written Representation	Applicant's Response
National Grid has been liaising with the Applicant in relation to the impacts of the proposed scheme on its existing apparatus and interests and to agree protective provisions to be included within the DCO to ensure that its apparatus and land interests are adequately protected and to include compliance with relevant safety standards. In addition, National Grid is in negotiations with the Applicant regarding the need to determine an acceptable alignment and extent of cable route and associated rights into Norwich substation in lieu of wide compulsory acquisition rights being sought by the applicant as part of the draft DCO, which are not acceptable.	The Applicant will continue liaising with National Grid to agree the protective provisions to be included in the DCO. In the event that agreement cannot be reached, the Applicant considers that the protective provisions in the DCO provide adequate protection for National Grid's apparatus. The Applicant acknowledges National Grid's position with regards to seeking compulsory acquisition rights over its land at Norwich Main substation. The Applicant is currently negotiating with National Grid to secure the necessary land rights across their property and hopes that a mutually agreeable position will be reached soon. However, the Applicant considers that the nature and extent of rights being sought across National Grid's land will not result in serious detriment to the carrying on of National Grid's undertaking and therefore the test set out in s127 of the PA 2008 is satisfied.
On the basis that it is in negotiations with the promoter, National Grid does not propose to submit any further detailed written representations at this stage, however reserves the right to make further representations as part of the examination process. If negotiations do not progress, National Grid will submit to the Examining Authority its preferred protective provisions by the deadline for the submission of comments on the revised draft DCO (Deadline 3).	The Applicant notes National Grid's desire not to submit further representations at this stage and acknowledges that National Grid reserves the right to do so for future deadlines.
National Grid has not received a draft SoCG from the Applicant but is otherwise willing to enter into such a statement to record the level of agreement reached as part of future deadlines.	Noted

Marine Management Organisation (REP1-083) and (REP1-095)

Summary

2.38 The MMO's Written Representation details the issues which remain outstanding following discussions that Applicant and the MMO have had regarding the Statement of Common Ground between July and October 2018. The outstanding issues are categorised into the following four topics: 1) Arbitration 2) Timescales 3) Monitoring Requirements and 4) The Environmental Statement.

Response Marine Management Organisation

Interested Party's Written Representation	Applicant's Response
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** 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** 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** 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)** 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.	The Applicant notes the comments in the summary, and has responded on these in detail in the main section relating to the Written Representation below.
Full Written Representation:	
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.	The Applicant has added the following condition to the draft DMLs in the DCO Version 1, as submitted for Deadline 1 (Schedule 11, Part 2, Condition 13(3) and Schedule 12, Part 2, Condition 14(3)). *Pre–construction archaeological investigations and pre–commencement material operations which involve intrusive seabed works must only take place in accordance with a specific outline written scheme of investigation (which must accord with the details set out in the outline offshore written scheme of investigation) which has been submitted to and approved by the MMO.*
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.	In the draft DCO Version 1, as submitted for Deadline 1 (Schedule 11, Part 2, Condition 13(1)(a) and Schedule 12, Part 2, Condition 14(1)(a)), the Applicant has amended this provision as below (new wording underlined):

Interested Party's Written Representation	Applicant's Response
Provision for approval of the final design plan has been reserved in the draft dMLs at Schedules 12 and 13 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.	*to ensure conformity with the description of Work No. 1 and compliance with conditions (i) to (v) above save that where the proposed layout prescribed in the design ~~provided~~ plan under this condition is in accordance with the development principles set out volume 2, chapter 7, and volume 5, annex 7.1 to the environmental statement that the layout shall not require the consent of the MMO ~~shall not be required~~.*
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.	The Applicant has assessed fully the potential impacts of the Hornsea Three project on fisheries in the Environmental Statement, volume 2, Chapter 6 (Commercial Fisheries [APP-066]). In addition, the DMLs in the draft DCO (Schedule 11, Part 2, Condition 13(4) and Schedule 12, Part 2, Condition 14(4)) require a fisheries coexistence and liaison plan to be approved by the MMO prior to licensed activities commencing and the appointment of a fisheries liaison officer as part of a project management plan and monitoring plan to be approved by the MMO (Schedule 11, Part 2, Condition 13(1)(d) and Schedule 12, Part 2, Condition 14(1)(d)).
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.	The Applicant has continued to work with Natural England, and is preparing a statement of common ground with them in this regard.
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 Applicant acknowledges that the MMO will consult with WDC on discussions relating to the Marine Mammal Monitoring Plan.
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.	The Applicant acknowledges that the MMO will consult with TWT on discussions relating to the Marine Mammal Monitoring Plan and In Principle Monitoring Plan.

Interested Party's Written Representation	Applicant's Response
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.	The Applicant would refer the ExA to Q1.13.64 in the Applicants Response to ExA's First Written Questions at Deadline 2.
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	These issues have been addressed in the Applicant's response to the MMO's Relevant Representation.

Interested Party's Written Representation	Applicant's Response
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 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	

Interested Party's Written Representation	Applicant's Response
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.	The Applicant responds to these points in turn as below: **Arbitration** Noted. **Timescales** The Applicant's poisition is set out in its response to the MMO's relevant representation. In summary, the Application proposes a four month consideration period as a compromise. between the previous eight week period proposed, and the MMO's request for six months. **Monitoring requirements** The Applicant has revisited and revised the monitoring requirements in both DMLs in the draft DCO submitted for deadline 1. **Environmental Statement (ES)** The Applicant has revisited and revised the monitoring requirements in relation to benthic receptors and added Schedule 11, Part 2, Condition 17(2)(a) and Schedule 12, Part 2, Condition 18(2)(a) which read as follows: *a high-resolution swath bathymetric survey to include a 100% coverage and a side-scan sonar survey of the parts of the offshore Order limits within which it is proposed to carry out construction works and disposal activities under this licence, to determine the location, extent and composition of any biogenic or geogenic reef features, as set out within the in-principle monitoring plan;* Regarding the impacts of underwater noise on Flambourough Head spawning ground, the Applicant has provided clarification in the response below as to the implications of a concurrent piling scenario (including effects on predicted noise levels) on the relative risk to spawning activity.
4. Written Representation The MMO's Written Representation details the issues which remain outstanding:	The Applicant notes the MMO's position regarding Arbitration, and repeats the points made in its response to the MMO's relevant

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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	representation. Fundamentally, the Applicant's position is that the ability to refer a dispute to arbitration is not a new concept in DCOs granted, and the terms in Schedule 13 simply set out a process for that arbitration to follow. This has previously been absent from DCOs, and so should be welcomed as providing certainty and an understanding of what should be expected by parties engaging with arbitration. Therefore, the provisions of Article 36 and Schedule 13 of the dDCO were not anticipated by the Applicant to be contentious. However, the contention that does exist appears to be founded in the MMO's hitherto mistaken assumption that the arbitration provisions that exist in previous DCOs do not apply to the MMO. That assumption is not correct. The MMO's regulatory decisions/determinations are already subject to arbitration in existing DCOs. The Applicant is not seeking anything beyond that accepted by the Secretary of State in other DCOs, other than a laudable attempt to achieve greater understanding for all parties as to how arbitration would operate in practice. This is in accordance with guidance. The Planning Act 2008 and the Planning Inspectorate's advice notes do not prescribe that DMLs should be standalone from the rest of the DCO, but it is accepted by the Applicant that such an approach has practical advantages. Therefore, if the Scretary of State prefers, the content of Schedule 13 could be transposed into schedules attached to the DMLs, or alternatively set out as a series of conditions. Either way, the desire for a standalone DML is not good justification to do away with the arbitration provisions altogether. Judicial review is not an effective remedy. As the MMO should well know, it can take years to resolve differences via judicial review litigation, and that is not conducive to delivering a renewable energy NSIP expeditiously to meet the urgent national need set out in the NPS. Furthermore, if the dispute is with the MMO, a complaint to the MMO is unlikely to resolve the dispute, hence why resolution by independent arbitration is required and accords with principles of natural justice. The Applicant does not agree with the MMO's interpretation of section 120 of the Planning Act 2008, which appears to completely overlook the fact that both deemed marine licences ("DMLs") and arbitration are matters expressly provide for in Part 1, Schedule 5 of the Planning Act 2008 (see paras 30A and 30B, and 37 respectively). Part 1, Schedule 5 is engaged by section 120(4), which is linked to subsection (3), which says "[a DCO] may make provision relating to, or to matters ancillary to, the [authorised development]".

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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.	Therefore, section 120 prescribes that DMLs (by reference to para 30A, Pt 1, Sch 5), conditions attached to DMLs (by reference to para 30B, Pt 1, Sch 5), and arbitration (by reference to para 37, Pt 1, Sch 5) are provisions relating to, or to matters ancillary to, the [authorised development] under section 120 (3), i.e. in the MMO's words those provisions and matters "which are necessary to support the primary development authorised under the DCO". It follows that if a DML, the conditions attached to a DML, and arbitration are matter/provisions falling within Pt 1, Sch 5, then arbitration and the process for it clearly can apply to a DML and the conditions attached to it. These are all matter falling within Pt 1, Sch 5. Section 120(2) is not relevant here because that subsection relates solely to the Requirements of the DCO, not conditions attached to a DML, which are covered by sections 120(3),(4), and Pt 1, Sch 5. There reference in section 120(2)(a) to "conditions which could have been imposed on the grant of any permission, consent or authorisation…which would have been required for the development", simply prescribes that Requirement may include that type of condition, it does not relate to the conditions of a DML, which are provided for elsewhere in section 120 as stated above. In addition to the above, the MMO has overlooked section 120(5)(c), which prescribes that a DCO may "include any provision that appears to the Secretary of State to be necessary or expedient for giving full effect to any other provision of the Order". Without prejudice to the submissions above, this subsection may also be relied on to give effect to the arbitration provisions in Article 36 and Schedule 13 of the dDCO, because those provisions are necessary and expedient to give full effect to the terms of the dDCO, in that they would facilitate expeditious resolution of a dispute. It is not accepted that the arbitration provisions "imply that arbitration will be the first point of call should any difference in opinion be encountered" or that "This implication is supported by several DML conditions, specifically highlighting the referral to arbitration in case of any difference" as asserted by the MMO. That approach is not expressly or impliedly included in the arbitration provisions. Moreover, logic dictates that it would not be in the Applicant's interests to incur time and resource engaging the arbitration procedure without first seeking to work directly with the MMO, and/or any other relevant party, to resolve the dispute. That said, the Applicant has no objection to amending Schedule 13 to make express provision for negotiation before engaging in arbitration. Accordingly the Applicant suggests the following text: *"The Parties will first use their reasonable endeavours to settle a dispute amicably through negotiations undertaken in good faith by the senior management of the Parties. Any dispute which is not*

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	resolved amicably by the senior management of the Parties within twenty (20) Business Days of the dispute arising, or such longer period as agreed in writing by the Parties, shall be subject to arbitration in accordance with the terms of this Schedule."
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.	The Applicant refers to its response to the MMO's relevant representation (RR-085) on this point.
4.3 *Part 1 (1) Work No. 15 (c) (page 31) - Disposal volumes* 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.	The Applicant notes the comments from the MMO in relation to the apparent discrepancy between disposal volumes. The reason for apparent discrepancy is that the maximum volume for the project as a whole does not include the drill arisings for HVDC converter substations within the Hornsea Three array area, as this results in a smaller overall volume than seabed preparation for the HVAC booster substation on the offshore cable corridor. The HVAC transmission therefore results in the maximum spoil volume for the project as a whole. In the event of a HVDC transmission scenario, the volume in the Hornsea Three array area would be greater (as indicated in Table 2.2 of Volume 5, Annex 3.2: Dredging and Disposal Site Characterisation; APP-086), with a reduction in the volume for the project as a whole (and the offshore cable corridor). The difference between the volumes quoted by the MMO is the difference in volume between the drill arisings for HVDC converter substations and the seabed preparation for the HVAC booster substations. Regarding the MMO's request for boulder clearance to be regarded as an act of disposal, at this stage, the Applicant does not envisage that there will be a need to bring the boulders on to a vessel at the surface when they are being cleared. However, if it transpires that this is a preferred option then the Applicant would seek a separate standalone licence for such an activity.
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	On the first point, regarding double counting of the length of cable, further conditions are not required, as the provisions of the DMLs already envisage and cater for the need not to double count the interconnector cable. This is contained in Schedule 11, Part 2, condition 3, which states that, for Schedule 11: "*The total length of the cables in Work No.1(c) and the volume of*

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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.	*their cable protection (excluding cable crossings) when combined with the cable authorised under Work No.2(c) of the deemed marine licence granted under Schedule 12 of the Order must not exceed the following..*" There is a corresponding condition in Schedule 12. Therefore, the total cable protection for both licences cannot exceed the given figure. In Table 3.48 of Volume 1, Chapter 3: Project Description of the Environmental Statement (APP-058), the last two rows were included in error. These are the areas/volumes associated with export cable protection, as included in Table 3.46. The total seabed area affected by crossings is 660,000 m2 as stated in the Response to the Planning Inspectorate's Section 56 advice – Relationship Between Design Parameters Draft Development Consent Order and Environmental Statement document (and as assessed in the Environmental Statement).
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-*	4.5 *Part 1 (11) (page 129) – Arbitration* The Applicant's position is set out above and in its response to the MMO's relevant representation. 4.6 *Part 2 (11) (page 134) - Pre-construction plans and documentation timescales* The Applicant refers to its response to the MMO's relevant representation (RR-085) on this point.

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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	4.7 *Part 2 (11) (1) (b) (page 135) - Pre-construction plans and documentation* Pre-construction and Construction montioring is now set out in Schedule 11, Part 2, Conditions 17 and 18, and Schedule 12, Part 2, Conditions 18 and 19. 4.8 *Part 2 (11) (1) (f) (page 136) – Pre-construction plans and documentation timescales* The Applicant refers to its response to the MMO's relevant representation (RR-085) on this point. 4.9 *Part 2 (12) (1) (Page 137) – Timeframes* The Applicant refers to its response to the MMO's relevant representation (RR-085) on this point. 4.10 *Part 2 (12) (2) (page 137) – Timeframes* As noted above, the Applicant has amended this to four months in the draft DCO submitted for deadline 1.

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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.	4.11 *Part 2 (12) (3) (page 137) – Arbitration* The Applicant's view on the arbitration provisions is outlined above and in its response to the MMO's relevant representation.
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	4.12 *Part 2 (15) (1) (page 138) – Monitoring and Surveys* The proposed condition was included in the draft DCO submitted for Deadline 1 (see Schedule 11, Part 2, Condition 17(1), an dSchedule 12, Part 2, Condition 18(1)).

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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 sub-paragraph (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.*	4.13 *Part 2 (15) (2) (page 138) – Monitoring and surveys* The Applicant refers to its response to the MMO's relevant representation on this point.
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.*	4.14 *Part 2 General Comment (page 139) – Dredge and Disposal* The Applicant refers to its response to the MMO's relevant representation on this point.
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	The Applicant's response to these points is as per the points above.

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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 4.12for 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. proposed in the draft DCO. The MMO will provide an update on this concern further into the examination process.	
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 MMOs 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	The Applicant refers to its comments above and in its response to the MMO's relevant representation in response to these comments.

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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	
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.	The Applicant has responded to this statement at point 1.71 in the Applicant's response to the MMO's Relevant Representation (RR-085) submitted at Deadline 1.
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	The Applicant has responded to this statement at point 1.72 in the Applicant's response to the MMO's Relevant Representation (RR-085) submitted at Deadline 1.
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	The Applicant directs the Ex.A to the response to the MMO RR (REP1-131) which stated: *The estimates of scour consider the full range of maximum design scenario foundation types* [including GBS, tripod and monopile] *and dimensions, and assume that the full equilibrium scour depth is achieved. This in turn assumes that scour development is not constrained by sediment type or other relevant environmental parameters. The estimate therefore represents the maximum realistically expected scour depth in any location (and for any sediment type) within Hornsea Three. Other assumptions would result in smaller estimated dimensions of scour.* The above does not suggest that 'site specific estimates of scour depth are required'. Site specific factors that might otherwise

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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.	result in smaller estimated dimensions of scour were outlined and considered in the assessment for Hornsea Three (but were found not to apply). The scour assessment is considered to be robust and appropriate for the designs being proposed, i.e. the purposes of EIA. The conservative basis upon which the scour assessment has been undertaken is consistent with both sediment dynamics theory and engineering recommended best practice. The empirical relationships that are used incorporate a wide range of data from the field, from the laboratory and other theoretical and numerical approaches. The predicted scour dimensions are conservatively representative of (typically greater than) the dimensions of scour actually observed around offshore wind farm foundations in UK waters (e.g. Whitehouse, R., Harris, J., Sutherland, J., and Rees, J (2011). The nature of scour development and scour protection at offshore windfarm foundations. Marine Pollution Bulletin, Volume 62, Issue 1, January 2011, pp73-88. Also in HR Wallingford Report HRPP461).
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 <BLANK> 6.4 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. 6.5 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 equating to 170m2). 6.6 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.	In response to the minor comments 6.2, 6.4 and 6.6, the Applicant has provided clarifications in relation to the sandwave clearance clarification note in response to the MMO comments in Section 7.2 below. In response to section 6.5, the Applicant provided a response to this query in the Applicant's response to the MMO's Relevant Representation (REP1-131). The maximum design scenario for a single spud can of 170 m2 is realistically representative of the larger installation vessels presently being used to install offshore wind farms in UK. If a smaller spud can is used, the footprint of that spud can would be smaller than the maximum design scenario of 170 m2. For example, for a 2 m diameter (as proposed by the MMO), circular spud can, the footprint would be ((2/2)^2) * pi = 3.14 m2.

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Benthic Ecology Major comments 6.7 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.	The In-Principle Monitoring Plan (IPMP), submitted by the Applicant at Appendix 2 of their response Deadline I (REP1-180) has been updated by the Applicant to include pre- and post-construction monitoring of the recovery of seabed sediments within the North Norfolk Sandbanks and Saturn Reef Special Area of Conservation (SAC), The Wash and North Norfolk Coast SAC and the Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ). The Applicant commits to providing monitoring plans in accordance with the IPMP at Schedule 11, Conditions 17, 18 and 19 and Schedule 12 Conditions18, 19 and 20 of the draft DCO (Version 1, as submitted for Deadline 1). The Applicant had also previously committed to undertaking monitoring of areas within these designated sites where cable protection measures are installed. The Applicant considers that this level of monitoring commitment adequately addresses stakeholder (including the MMO and Natural England) perceived uncertainties regarding the impacts associated with cable installation along the offshore cable corridor (i.e. sandwave clearance and cable protection). The Applicant would agree with the MMO's comment that broad scale monitoring is not appropriate and would refer the Ex.A to the Applicant's response to Q1.2.10 submitted at Deadline I (REP1-122). Here the sources of empirical evidence used to support the assessments of impacts and predictions of recovery of benthic habitats presented in Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) are fully detailed, with the large amount of empirical evidence used to inform the impact assessment indicating low uncertainty with regard to impact assessment predictions. The Applicant would also draw atatention to the findings of the MMO *Review of environmental data associated with post-consent monitoring of licence conditions of offshore wind farms* (MMO, 2014) which indicated that, to date, post-consent monitoring of offshore wind farms has not demonstrated any significant impacts on benthic infaunal communities, suggesting therefore that the communities impacted during construction have recovered. In support of this, the Applicant would also refer the Ex.A to Natural England's comment in paragraph 3.1 of Annex D1 of Natural England's Written Representation (REP1-210) where they state that the benthos is likely to recover if it can be demonstrated that the sediment composition remains unchanged. The proposed monitoring outlined in the IPMP, focussing on recovery of seabed sediments, is therefore considered to be adequate and robust, without the need for benthic infaunal sampling (i.e. there is considerable evidence which shows that if seabed sediments recover, infaunal communities will recolonise these areas). The monitoring proposed focussed on the key areas of stakeholder concern, including construction operations within protected areas, sandwave clearance and cable protection. As outlined in the In-Principle Monitoring Plan, the need for any further monitoring surveys will be discussed with the MMO and determined on the basis of the level of recovery of sediments in the locations sampled, up to a maximum of two additional surveys.

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Fish and Shellfish Major comments 6.8 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 pilling 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.	The Applicant acknowledges the comments from the MMO in relation to the risk to herring spawning at the Flamborough Head spawning ground, located some 80 km from the Hornsea Three array area. This point is currently "under discussion" in the SoCG with the MMO (REP1-224). As outlined in Paragraphs 3.11.1.69 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement (APP-063), behavioural effects on herring (and other 'Group 3 and Group 4' fish species) would be expected to occur over the range of tens of kilometres and therefore due to the distance between the Hornsea Three array area and the Flamborough Head spawning ground, the risk of behavioural effects on spawning aduts is very low. As detailed in paragraph 3.11.1.70 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement, noise contours were presented, at the request of the MMO during section 42 consultation, in order to demonstrate this risk. These contours were presented in figures (i.e. Figure 3.4 and Figure 3.5 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement) for illustrative purposes only as there are no agreed behavioural noise criteria for fish. For herring, the noise contours assume piling at the closest point within the Hornsea Three array area to the herring spawning ground off Flamborough Head (i.e. representing the greatest risk to behavirоual effects on herring spawning) and demonstrated that the risk of behavioural effects are low and that piling at any other location within the Hornsea Three will increase this distance, further reducing the risk to this herring spawning ground. At a great distance from piling activities the pulses from two sources are highly unlikely to occur at the same time at any one location. In the worst case scenario this will cause a 3 dB increase in the noise level, leading to 142 dB SPL_{peak} at the edge of Flamborough Head spawning ground (which equates to less than 130 dB SEL_{ss}), rather than 139 dB SPLpeak shown in Figure 3.4 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement. It should be noted that, while there are no numerical behavioural avoidance criteria, these noise levels are very low and highly unlikely to lead to any behavioural responses to herring or other fish species considered in the impact assessment. This demonstrates that a concurrent piling scenario would not increase the risk of behavioural effects on spawning herring at the Flamborough Head spawning ground and therefore confirms the conclusion that the effect was of minor adverse significance which is not significant in EIA terms. Given the evidence presented by the Applicant above and within the relevant impact assessment which demonstrates a very low risk of significant effect, it is not clear to the Applicant what justification there is for the residual concerns raised by the MMO with respect to the Flamborough Head spawning ground. The Applicant would welcome evidence from the MMO which shows that a risk of significant effects on herring spawning exists.

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6.9 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 the Annex 1 attachement for the rationale behind this request.	The Applicant acknowledges the MMO comments in relation to sandeel monitoring. The IPMP includes pre and post construction monitoring of seabed sediments within the Hornsea Three offshore cable corridor to assess recovery rates following cable installation activities, including sandwave clearance. Whilst it is noted that parts of the Hornsea Three array area (e.g. the central section) was characterised as 'preferred' sandeel habitat, much of the area in the north and the southern half of the array area was classified as 'marginal' or 'unsuitable' (see Figure 3.23 of Annex 3.1: Fish and Shellfish Ecology Technical Report; APP-105). Areas of 'preferred' sandeel habitat were recorded extensively along sections of the Hornsea Three offshore cable corridor, particularly in the vicinity of the North Norfolk Sandbanks and Saturn Reef SAC and sandwave fields to the south of it. The monitoring within this part of the offshore cable corridor is targeted at demonstrating recovery of the seabed following cable installation, with sandwave clearance monitoring being particularly relevant to sandeels (i.e. sandwaves would provide the 'preferred' sediment type for sandeels). The monitoring proposed would therefore achieve the same objective, that is to demonstrate that the seabed has recovered to an environment which is still suitable as a spawning, nursery ground and habitat for sandeels. The Applicant is willing to amend the wording of the IPMP to include consideration of sandeel habitat during monitoring of sandwave clearance activities within the North Norfolk Sandbanks and Saturn Reef SAC, in consultation with the MMO.
Underwater noise modelling Volume 4 – 3.1 – Subsea Noise Technical Report: 6.10 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.	A linear fit was applied to the data available for operational wind turbine noise as this was the extrapolation that would lead to the highest, and thus worst case, estimation of source noise level from the larger 15 MW turbine. This resulted in an estimated source level of 158.5 dB SPLrms, 12 dB higher than the 6 MW turbine, the largest for which noise data existed. Alternatively, using a logarithmic fit (3 dB per doubling of power output) to data would lead to a source level of 149.8 dB SPLrms. A more extreme and unlikely 6 dB increase per doubling of power output would lead to 154.5 dB SPLrms. Thus the linear estimate used is considerably higher than alternatives and this still leads to a conclusion of TTS impact ranges of less than 10 m for the most sensitive fish species (Popper et al. 2014). It should be noted that Subacoustech has recently completed 14 weeks of continuous underwater noise monitoring at 50 m from a 6 MW offshore wind turbine, the longest and most detailed study that we are aware of. In this study the highest noise level measured from the turbine over the whole period was 126 dB SPLrms at maximum power output. At 50 m, an increase of over 30 dB would be required to reach TTS onset in the most sensitive fish species, which is more than double that of the suggested worst case extrapolation used in the Volume 4, Annex Annex 3.1: Subsea Noise Technical Report of the Environmental Statement (APP-085).
6.11 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 recognises the need for clarification in Section 6.3.1.6. "Extrapolation" in this paragraph relates to the accumulation of the SEL over time, i.e. the 1-second SEL noise levels were extrapolated (accumulated) over a 24-hour period as

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The Applicant provided further clarification in the RR comments received on 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 µPa (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.	required by NMFS criteria. In previous paragraphs "extrapolation" related to the calculation of an increase in the noise level from an operational turbine beyond the noise emissions of known turbine power outputs. MMO has stated that Popper et al. (2014) impact from continuous sources on fish are defined by the RMS metric, not the SELcum metric, which is correct. SELcum is in relation to the NMFS (2016) non-pulse criteria. Both Popper et al (2014) and NMFS (2016) would require a receptor to remain within 10 m of an operational turbine for 12-24 hours to receive a dose close to that required for TTS onset.
6.12 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).	The Applicant acknowledges the MMO comment and has provided a response to this within the Applicant's response to the MMO Relevant Representation (REP1-131) explaining the rationale for assuming a "fleeing animal" to model cumulative Sound Exposure Levels for fish. Notwithstanding the response to the MMO's Relevant Representation, the Applicant would refer the Ex.A to the response to point 6.8 above. The impact assessment on the effect of piling noise on the behaviour of adult herring at the Flamborough Head spawning ground was informed by predicted noise levels in the SPLpeak metric, which did not assume a fleeing animal. As outlined in the response to MMO's comment 6.8 above, in a very unlikely worst case scenario, concurrent piling would increase the SPLpeak noise leve by 3 dB which would not increase the risk to spawning herring at Flamborough Head. The conclusion of the impact assessment was that the risk to spawning herring was low and the effect was of minor significance (i.e. not significant in EIA terms), which remains valid even in a concurrent piling scenario.
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.	Noted
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.	Noted
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	The Applicant acknowledges the comments from the MMO on this clarification note and has nothing further to add.

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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	The Applicant acknowledges the comments from the MMO on this clarification note. With respect to the points to be addressed, the Applicant's response is as follows: Regarding the current measurement campaign that is underway within the HOW03 proposed export cable route, this is being undertaken as a scour assessment exercise to inform the design of cable crossings and associated protection (details which will be confirmed during detailed design in consultation with other operators, post consent) and it is not in relation to the requirement for sandwave clearance. Section C1 and C2: Alternative presentations of the same data are provided in Figure 1 and Figure 4, below. It is noted that the clarification note reported the modal sediment trasnport rate based on linearly distributed magnitude boundaries, as shown in the original presentations. The basis and conclusions of the clarification note are unchanged. Section C.3. The progressive vector diagrams (PVDs) C.3 and C.4 provide an indication of the magnitude, direction and variability of net sediment transport over the data analysis period. The results of the PVD analyses (in terms of the overall net direction of transport), together with the indicative predominant transport rate (from Figures C.1 and C.2) are summarised in the column 'Sediment transport potential and direction of net transport' in Table 2.1. Section 3.10: Down sampling sampling of the multibeam bathymetry grid to 5 m resolution was undertaken in order to identify relevant slopes to define bedforms that would need to be cleared and differentiate these from those which would not affect the proposed installation tools. The decision to down sample to 5 m was taken as this was the smallest footprint of any of the tools proposed. Identifying bedform slopes using of a smaller MBES grid size would have identified small ripples and megaripples which do not require clearance and would have artificially inflated the estimated volumes for sandwave clearance. Section 4.6 defines the catagory terms that are used elsewhere in the report to describe indicative magnitudes of sediment transport rates (very low, low, medium and high, with associated ranges in units of m3/m/hr). The preceeding sections 4.3 to 4.5 describe how a long timeseries of estimated sediment transport rates are

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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?	calculated (using up to 39 years of hourly historical wave, tide and surge current speed data from the ABPmer SEASTATES hindcast database). The frequency of occurance for different sites is shown as histograms in Figures C.1 and C.2 and discussed in the associated text. In Section 4.5, the missing cross reference was to Figure 2.1 of the main report.
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 and has not been considered.	The Applicant acknowledges the comments from the MMO on this clarification note. With respect to the two points to be addressed, the Applicant's response is as follows: The Applicant has proposed a range of methods for cable burial within Volume 1, Chapter 3: Project Description of the Environmental Statement (APP-058) and has not committed solely to one cable installation tool. While different operators or contractors may use different tools for installing cables, this has no bearing on the maximum design scenario considered within the DCO application with respect to cable protection measures. The Applicant is therefore confident that the 10% assumption with respect to cable protection is realistically conservative based on the Applicant's experience in a range of offshore environments in the UK continental shelf. The examples provided within the clarification note review were drawn exclusively from Ørsted projects, as these were based on asset integrity surveys for those projects. The findings of asset integrity surveys are not typically publicly available and therefore it was not possible to use examples from other offshore wind developers, including Vattenfall's Thanet wind farm. If the MMO is aware of publicly available data for the Thanet project which may be relevant to the project, the Applicant would be willing to consider this evidence.
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.	Noted.
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	Noted.

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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	Noted.
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	Noted.
11. Notification of wish to have future correspondence electronically The MMO wish to have future correspondence electronically.	Noted.
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.	See the Applicant's response to MMO comment 6.9 above.

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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 Latto 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	

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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.	

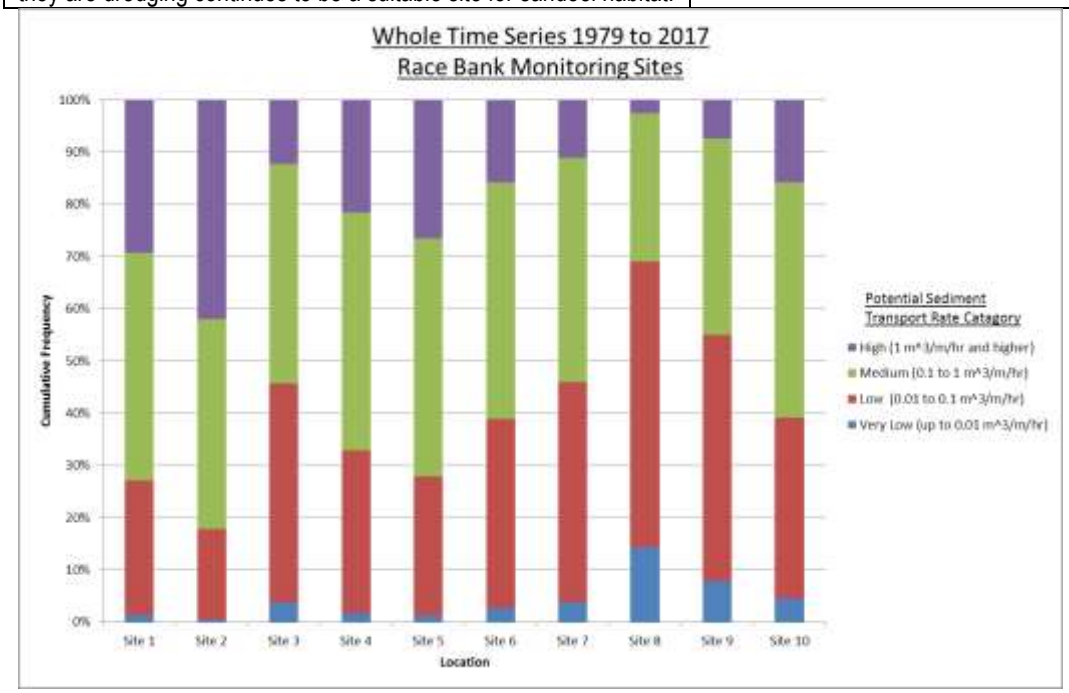

Figure 1: See response to Written Representation Comment 7.2. Alternative presentation of the data in plot C.1 of the sandwave clearance clarification note. Showing the cumulative frequency of occurance for potential sediment transport rate catagories at 10 locations in the Race Bank Offshore Wind Farm during the period 1979 to 2017 (see the sandwave clearance clarification note for more details).

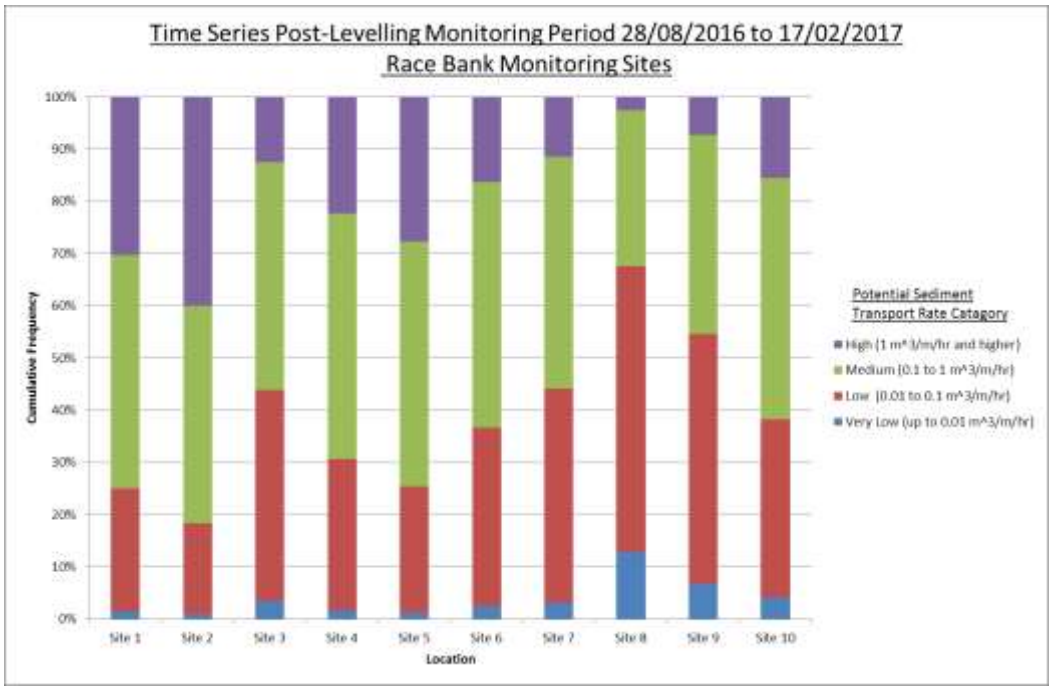

Figure 2: See response to Written Representation Comment 7.2. Alternative presentation of the data in plot C.1 of the sandwave clearance clarification note. Showing the cumulative frequency of occurance for potential sediment transport rate catagories at 10 locations in the Race Bank Offshore Wind Farm during the period between pre and post levelling surveys (see the sandwave clearance clarification note for more details).

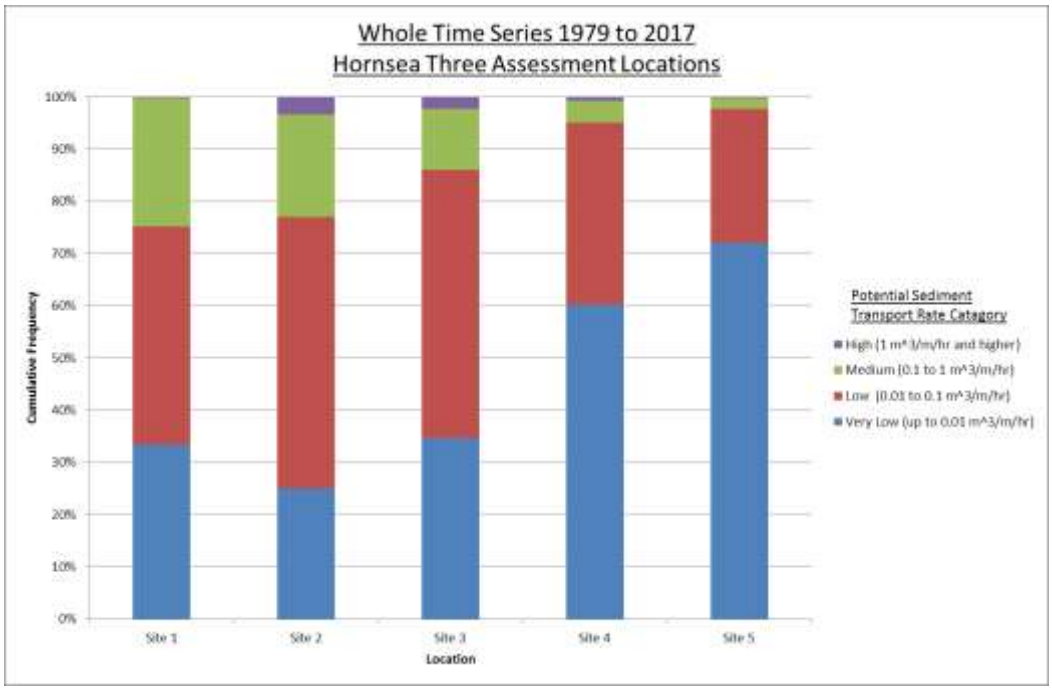

Figure 3: See response to Written Representation Comment 7.2. Alternative presentation of the data in plot C.2 of the sandwave clearance clarification note. Showing the cumulative frequency of occurance for potential sediment transport rate catagories at 5 locations in the Hornsea Three Offshore Wind Farm during the period 1979 to 2017 (see the sandwave clearance clarification note for more details).

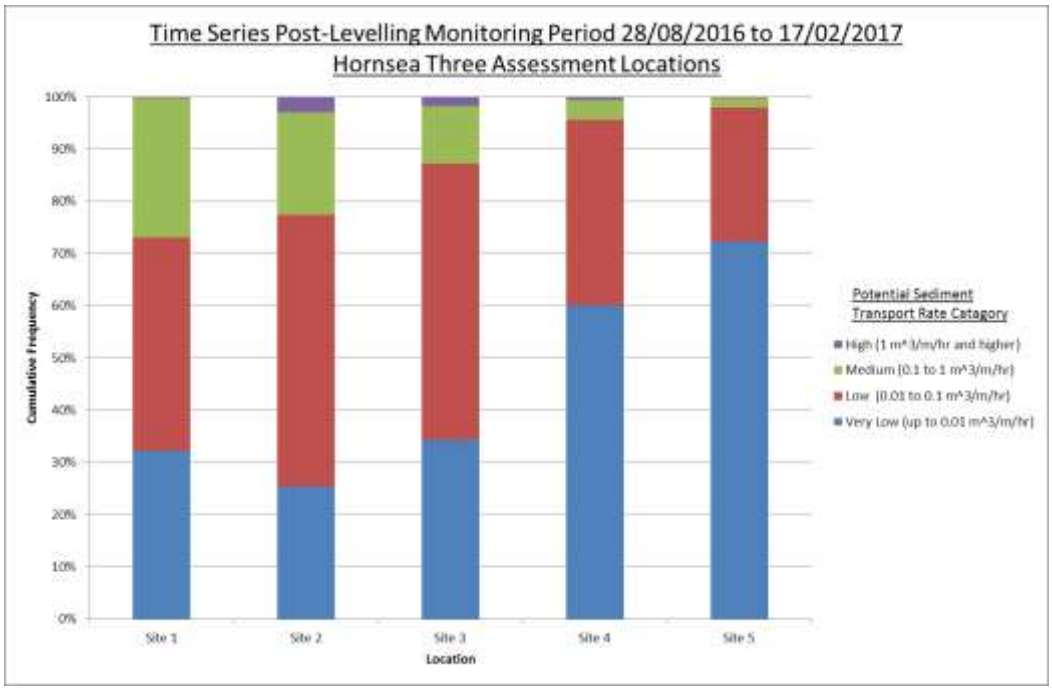

Figure 4: See response to Written Representation Comment 7.2. Alternative presentation of the data in plot C.2 of the sandwave clearance clarification note. Showing the cumulative frequency of occurance for potential sediment transport rate catagories at 5 locations in the Hornsea Three Offshore Wind Farm during the period between pre and post levelling surveys at Race Bank (see the sandwave clearance clarification note for more details).

Response to Mr and Mrs Hall (REP1-085)

Summary

2.39 This response extends to the written representations submitted by Affected Persons as identified in the Book of Reference (APP-033).

Response to Response to Mr and Mrs Hall

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Please accept this a formal objection to the above development • Detrimental impact on countryside and wildlife • Detrimental Air Quality/Noise impact on small village • Increase in traffic on already congested B1113 It seems that our house is the only adversely affected property and we require a site visit from the planning department/ planning inspectorate with Orsted also so they can take on our issues. Orsted are vey good at saying oh it wont affect you we will put some screening up it is going to be a massive footprint and a massive blot on the countryside Orsted have not been totally truthful about the detrimental impact this will have on the countryside and wildlife- they have misguided reports to tick boxes which are not a true representative of the area and should not form part of the	The Applicant would refer to the Applicant's Comments on Relevant Representations RR-001 and RR-052) submitted at Deadline 1 (REP1-131) which addresses matters relating to impacts from the onshore HVDC converter/HVAC substation on LVIA, ecology, noise, traffic and associated mitigation. The Applicant strongly rejects any suggestion that it has been untruthful. The Applicant's Environmental Statement complies with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 and any impacts of Hornsea Three on the countryside and wildlife have been properly assessed. In respect to the images shown at the Community Consultation Event held at Swardeston Village Hall on 04 September 2017, these images were illustrative and represented one of multiple

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application without being challenged The images we were originally shown at the demonstration at Swardeston village hall have never been seen since.We asked for copies (which took a very long time) we were shown different images from no point near our house- Swardeston Common:Intwood Lane and Mangreen Lane. We have been told that during construction there will be no increase noise levels (the construction is less than 200 metres from our property) how can this be? this is without the air pollution which I have seen no report for (Orsted) said on live radio that there is no evidence that the construction would devalue our property – asked if any of them would purchase they declined to answer I know that our objection will not be taken seriously and that this is a forgone conclusion but it is not fair that these big overseas companies can come in and take our villages away from us	scenarios which could ultimately be delivered at the onshore HVDC converter/HVAC substation based on what was known at that given time in the pre-application phase. As noted in the Applicant's responses to RR-001 and RR-052, the visual impacts of the proposed HVDC converter/HVAC substation have been assessed in Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement [APP-076]. This is supported by a set of visualisations of the HVDC converter/HVAC substation provided in Volume 6, Annex 4.5: Photograph Panels, Wirelines and Photomontages [APP-146]. The wirelines presented in APP-146 represent the maximum design scenario (as described in Table 4.6 of APP-076) i.e. the greatest height and scale, whilst the photomontages represent an indicative design. It is important to note that this indicative design is provided for illustrative purposes only, and the final design of the onshore HVDC converter/HVAC substation will be secured through Requirement 7 of the dDCO (APP-027). Requirement 7 of the draft DCO [APP-027] requires that details including the layout, scale, finished ground levels, external appearance, materials, access and circulation areas, and timetables for the landscaping works at the HVDC converter/HVAC substation will be submitted to and approved by the relevant planning authority prior to commencement of construction. However, the Applicant would note that this final design will need to be within the confines of the maximum design scenario, i.e. it couldn't be any larger than the maximum dimensions presented in the wirelines as show in APP-146.

Ray and Diane Pearce (REP1-087)

Summary

2.40 Ray and Diane Pearce have submitted one written representation at Deadline 1 (REP1-087). The written representation raised concerns regarding cable routing, the proposed crossing of Hornsea Three and Norfolk Vanguard/Norfolk Boreas, construction compounds, cumulative effects assessment and electro-magnetic fields. Points have also been raised regarding the Environment Impact Assessment Methodology, cross-referencing within the Application documents and non-disclosure agreements.

2.41 The Applicant would refer to the Applicant's Comments on Relevant Representation RR-019 submitted at Deadline 1 (REP1-131) which provides commentary on the non-disclosure agreement, which is a standard agreement entered into when two commercial parties initiate discussions on a wide range of issues, as well as the proposed crossing point with Norfolk Vangaurd/Norfolk Boreas. The remainder of the points have been addressed in the Consultation Report, Annex 15: Phase 2 Responses of the Application (APP-034).

Response to Ray and Diane Pearce

Interested Party's Written Representation	Applicant's Response
Other References: 1. Hornsea Project Three Preliminary Environment Information Report (PEIR) dated 27th July 2017. 2. Property: Property Title: , Grid Reference: 3. The Biological Effects of Weak Electromagnetic Fields - 2007. 4. DECC Power Lines: Demonstrating compliance with EMF public exposure guidelines –March 2012. Dear Planning Inspectorate, Please find below our Written Representation regarding the Hornsea Project Three Offshore Wind Farm. Whilst we acknowledge that we have had face to face meetings with the Project Manager, Stakeholder Relations Advisor and Project Engineer we still have grave and unprecedented concerns for the future of our home, health and business precipitated by the proposed plans for the project. However, questions relating to the crossing point of the Hornsea Project Three cables with those for Vattenfall's Vanguard and Boreas Projects are primary to our concerns, and, have been inadequately addressed during the consultation, especially in the PEIR (Other Reference 1). Ørsted (formally DONG Energy) have notified us that they cannot discuss how their cables will cross with those proposed by Vattenfall, as the details are subject to a commercial 'None Disclosure Agreement' (NDA). We contend that: the imposition of an NDA is neither in the public's interest, nor acceptable in any public consultation, as many issues will not be suitably discussed, not least, the environmental impact of the proposed cable crossing point. Therefore, some of the questions we have previously submitted to Ørsted remain unanswered by: the PEIR, the public consultation and the project personnel we have met. We hope the Planning Inspectorate will consider our representation.	The Applicant would refer to the Applicant's Comments on Relevant Representation RR-019 submitted at Deadline 1 (RR-REP1-131) which provides commentary on the non-disclosure agreement, which is a standard agreement entered into when two commercial parties initiate discussions on a wide range of issues, as well as the proposed crossing point with Norfolk Vangaurd/Norfolk Boreas. The Applicant notes that this writen represetation (here and below) refers to the PEIR. The Applicant would highlight that the PEIR formed the preliminary stage of the environmental assessment, with an Environmental Statement submitted as part of the Application and providing a more up to date position. This comment is not repeated below.
Cable Routing We have discussed this issue with Ørsted's representatives and National Grid plc but their answers were either elusive of inadequate. The PEIR does not sufficiently explain why the connection point at Walpole was disregarded and the Public has been presented with a "fait accompli" regarding the allocated connection point, being at Norwich Main. The allocation of Norwich Main to the Hornsea Project Three would cause the cables to have to cross other projects' cables also in consultation, namely those of Vattenfall's Vanguard and Boreas projects. We hereby contest, through the Planning Inspectorate, that the allocation of connection points under a historic licence, made by National Grid plc, are neither co-ordinated nor adequate for the future development of off-shore wind farms. We consider that: either, a national co-ordinating body separate to the 'for profits' company currently responsible for NETS connections is established, or, the current licence issued to National Grid plc is urgently reviewed to reflect the current UK National requirements for renewable energy, especially when considering the consequential increase in NETS connection applications. The PEIR discusses the National Grid connection offer at Volume 1, Chapter 4, 4.8.3. A copy of our email to National Grid regarding	The Applicant would refer to the Applicant's Comments on Relevant Representation RR-019 (REP1-131) which sets out the process of idenifying a grid connect location and how this process was applied to Hornsea Project Three, and where relevant to comment on, Norfolk Vanguard/Norfolk Boreas. The Applicant also refers to National Grid's response to the Examining Authority's First Written Question Q1.1.11 (REP1-070).

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the connection point is at Attachment 1; National Grid's reply is at Attachment 2. Consequently, we do not accept that the allocation of Norwich Main is the best and most commercially viable connection point for Hornsea Three. Also, with the aim being to consult and inform the Public, the options have neither been explored nor discussed sufficiently during the consultation. We contest that Walpole is closer to Hornsea Three than Norwich Main, and, save for a short 6-mile land cable, would provide for a mainly off-shore cable with a minimal environmental impact; there is the precedent of the Race Bank Project routeing cables through the Wash (Race Bank is also one of Ørsted's projects). Therefore, we contend that the decision on the connection point for this project was made for other reasons which have not been disclosed. As a 'Public Limited Company' National Grid has a vested interest to make a profit for its shareholders; the Company makes money from its owned assets. Therefore, as the company will be able to bid for the operating licence of the transmission system from the Hornsea Three Project via the 'OFTO' process, and increase its asset base, it could be argued that the allocation of connection points, albeit with potentially adverse consequential environmental impacts, are made primarily for commerciality and profitability. Connecting to the NETS at Norwich Main, via a 55km trench, 60 metres wide and up to 1.5 metres deep across the Norfolk countryside cannot be less expensive than a marine cable to Walpole and cannot have less impact on the environment. The consultation for the Hornsea Project Three does not fully qualify how the decision to utilise the Norwich Main connection point came about, and, offers no alternatives for the public to consider.	
Property Our property (Reference 2), is in a unique position with regards to the project as it is situated within 80m of the proposed cable route and, more importantly, adjacent to the position where the Hornsea Project Three cables cross the Vanguard and Boreas cables. Unfortunately, in accordance with the PEIR Volume 6 Annex 4.6 regarding the 'Cumulative Effects Assessment', our property was not included for assessment and the Project managers have not informed us why? The design, engineering and construction of the crossing point has not been considered and should not be underestimated as having a permanent impact on our residential property and Furnished Holiday Let (FHL) business. The project has already had a 'High Impact' on our property which has been 'blighted' by the proximity of the plans, and, our business will suffer going forward by being disrupted with a prolonged and intrusive construction phase. The consultation makes no reference to our situation despite other residences and businesses being individually referenced.	The Applicant would refer to the Applicant's Comments on Relevant Representation RR-019 submitted at Deadline 1 (REP1-131). The Applicant would also refer to the Consultation Report, Annex 15: Phase 2 Responses submitted as part of the Application (APP-034). Table 3.1, page 481 of APP-034 sets out where within the Application documents a cumulative effects assessment has been undertaken, with particular reference provided to Norfolk Vanguard and Norfolk Boreas. The cumulative effects assessments within each respective topic chapter of the Environmental Statement considers sensitive receptors which may be affected by the combination of impacts from multiple projects; however, the assessment does not specifically identify properties which fall outside the area where there is the potential for signficant effects. Impacts on businesses are assessed in Volume 3, Chapter 10: Socio-Economics of the Environmental Statement (APP-082). An assessment of the cumulative impact on offshore and coastal tourism and associated economic value is presented at paragraphs 10.11.1.115 – 10.11.1.1118. The assessment study area identified within this chapter covers the areas of Broadland and South Norfolk Council jurisdictions, such that the principles of the assessment presented in these paragraphs would also apply to the proposed crossing location with Norfolk Vanguard/Norfolk

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	Boreas. As such, the Applicant would confirm that there is no signficant effects at this location, either by Hornsea Three in isolation, or cumulatively with Norfolk Vanguard/Norfolk Boreas and the signficance of effect is expected to be minor adverse.
Construction Compounds A 'Construction Compound' is proposed to be located adjacent to our property in accordance with the PEIR's Onshore Key Plan Map 5. This was not communicated to us until the publication of the PEIR. Coupled with the location of the cable crossing point, the additional disruption of locating a construction compound adjacent to our property will have a severe and negative impact upon us. The cumulative effects of the location of construction compounds on private residents and members of the public has not been discussed. The disruption we will experience if the planned construction compound is located thus will be untenable and could be for a prolonged period. Clearly, there will also be an environmental impact on the location of construction compounds, not least on Oulton Airfield, for which the consultation, thus far, is deficient. There will undoubtedly be an impact upon the local population which needs to be disclosed. The proposed construction compounds, in general, will also have an impact on the appearance and character of the planned areas with implications in respect of agriculture during a prolonged construction phase which is not evident in the PEIR. A prolonged period of disruption could ensue as the construction phase for the project is not time limited. More importantly, the construction phase could also be concurrent with those for Vattenfall's Vanguard and Boreas projects which, without co-ordination, could disrupt the Norfolk countryside and environment for over a decade.	In respect to the secondary construction compounds, one of which is located close to the proposed crossing point with Norfolk Vanguard/Norfolk Boreas, the Applicant would refer to the response provided to the S42 responses, as detailed in the Consultation Report, Annex 15: Phase 2 Responses (APP-034), Table 3.3, page 27. The cumulative effects assessments within each respective topic chapter of the Environmental Statement considers sensitive receptors which may be affected by the combination of impacts from multiple projects. The cumulative effects assessment takes into consideration impacts on sensitive receptors (including members of the public and residential properties) arising from the installation of the onshore cables as well as the operation of the construction compounds.
Cumulative Effects Assessment There will be a cumulative effect from the Hornsea Project Three cables crossing the Vanguard and Boreas cables. The cumulative effects of co-locating multiple High Voltage (HV) cables, carrying up to 6 GW of electrical energy, should not be underestimated; to quantify, 6GW is five times the maximum output of Sizewell B Nuclear Power Station! Ørsted have not addressed the environmental issues or local heating effects, for example. Notwithstanding the potential cumulative EMF, the PEIR Volume 4 Annex 5.1, only acknowledges that there are other projects in 'Planning Application'; this is despite acknowledgement from Ørsted that there have been specific discussions with Vattenfall regarding their projects. These discussions have purposefully not been included in the consultation due to an NDA. By its own admission, the consultation process should discuss the cumulative impact of projects, plans and activities with which Hornsea Project Three may interact. Regarding the crossing point, it is absolutely deficient. We contest that the Project does not have a design proposal for the crossing of the Hornsea Three cables with those of Vanguard and Boreas. The minimum depth of the proposed HV cables will be 1.2m and the maximum 2.0m. Therefore, considering the significant number of cables, and, the limited depth to which HV cables can be buried before they are	The Applicant would refer to the Consultation Report, Annex 15: Phase 2 Responses submitted as part of the Application (APP-034). Table 3.6, page 58 of APP-034 sets out where within the Application documents, a cumulative effects assessment has been undertaken and the conclusions reported. The Applicant would also refer to the Table 3.8, page 81 of APP-034 which provides details of the depth of the cable trench/HDD crossing. As noted above, notes that this writen represetation (here and below) refers to the PEIR. The Applicant would highlight that the PEIR formed the preliminary stage of the environmental assessment, with an Environmental Statement submitted as part of the Application and providing a more up to date cumulative effects assessment. Where appropriate the findings of the cumulative effects assessment have been revisited to reflect the evolving nature of the planning process for various projects (i.e. the submission of the Norfolk Vanguard Application); the findings of this assessment are reported within Appendix 16 to the Applicant's Response to to Ex.A Question 1.15.3 submitted

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unable to efficiently dissipate heat, there will be a significant and potentially detrimental impact on the local environment for soils, principle and secondary aquifers, substrates and groundwater, especially with respect to any thermal effects. Considering the depth and comprehension of the cumulative effect assessment for the off-shore environment, we question why the on-shore environment has not been afforded the same level of detail, during the consultation, detail which could have been reported in the PEIR? Accordingly, there is a requirement for there to be a co-ordinated plan which will affect the relative depth of either Hornsea Three's cable trench or indeed that of Vanguard and Boreas', which will have a consequence for the environment especially regarding Hornsea Three's lack of decision regarding HVAC versus HVDC. From the Planning Inspectorates directive, as follows: "…. the Overarching NPS [National Policy Statement] for Energy (EN-1) paragraph 4.2.5 states that: 'When considering cumulative effects, the ES [Energy Supplier] should provide information on how the effects of the applicant's proposal would combine and interact with the effects of others already in existence'." We contest that the crossing of the Hornsea Project Three cables with the Vanguard and Boreas cables, will have detrimental effects on the environment, the ecology, the population and potentially human health (see EMFs). However, most importantly, there will be 'cumulative effects.' Astonishingly, the PEIR states that the overall effect will solely be from the Hornsea Three cables, with the environmental impact grading of the cables being no worse than "minor adverse".	at Deadline 1 (REP1-174).
Non-Disclosure Agreement (NDA) We are aware that Ørsted and Vattenfall have agreed a commercial NDA which will undoubtedly restrict what can be placed in the public domain. We insist that the NDA cannot be in the best interest of the environment, the residents of Norfolk, or the consultation process as a whole. We contest that the imposition of an NDA is limiting the Hornsea Project Three managers from providing information on the design engineering of how the cables will cross and interact. The Project's representatives have claimed that they have had: "regular and detailed discussions" with Vattenfall on the crossing issue. However, without the imposition of an NDA, these discussions could have, and should have, been made public within the respective public consultations, as exampled by the discussions with other inter-related bodies, such as: the Marine Environment report contained in the PEIR. Therefore, for the on-shore environment, the PEIR alone is an incomplete and elusive document and we contest that the Hornsea Project Three consultation has failed in its duty of care to the Public. We also question why the location and construction of cable bonding pits and their interaction with the environment is not evident in the PEIR. Due to the length of the proposed transmission system, there will be a significant number of bonding pits, with a significant impact on the environment during the construction, operational, and post operational phases.	The Applicant would refer to the Applicant's Comments on Relevant Representation RR-019 submitted at Deadline 1 (REP1-131) which provides commentary on the non-disclosure agreement, which is a standard agreement entered into when two commercial parties initiate discussions on a wide range of issues, as well as the proposed crossing point with Norfolk Vangaurd/Norfolk Boreas. In respect to link boxes and joint bays, the Applicant would refer to the Applicant's Responses to the ExA's First Written Questions Q1.9.8 and Q1.9.9 submitted at Deadline 1 (REP1-122). Impacts of link boxes and joint bays are assessed within the relevant topic chapters of the Environmental Statement.

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Cross Referencing We contest that the cross referencing and detail within the PEIR document is misleading and fundamentally flawed. For instance, PEIR Volume 3, Chapter 1 - 1.14.1.2 states that: "A description of the likely inter-related effects arising from Hornsea Three geology and ground conditions is provided in volume 3, chapter 12: Inter-Related Effects (onshore)" … but there is no chapter 12 and the onshore inter-related effects in chapter 11 do not mention Vanguard or Boreas. Further, in PEIR Volume 3, Chapter 1, Table 1.3 (Page 7), as a result of the Scoping Opinion, Dong Energy (Ørsted) was directed by the Planning Inspectorate as follows: "Careful consideration should be given to the potential for overlapping cable corridors with the Norfolk Vanguard offshore wind farm and any resultant cumulative impacts." The response in the PEIR to the issue of overlapping with Vanguard being as follows: "Cumulative impacts are discussed in section 1.12." However, there is no mention within Section 1.12 of the PEIR, whatsoever, of the "…overlapping cable corridors…" despite having been specifically directed by the Planning Inspectorate to take it into "careful consideration". We reiterate, any "careful consideration" is shrouded in secrecy by the NDA previously discussed.	The Applicant would refer to the Consultation Report, Annex 15: Phase 2 Responses submitted as part of the Application (APP-034). Table 3.1, page 342 and 344 of APP-034 sets out where within the Application documents, a cumulative effects assessment has been undertaken and the conclusions reported. It also provides further discussion on the difference between inter-related effects and cumulative effects.
Electro-Magnetic Fields (EMFs) The EMF issue is difficult, highly technical and open to conjecture. We have discussed, at length, the EMF issues with the Hornsea Project Three representatives and their selected specialists from National Grid plc., especially regarding the crossing point. Despite the depth of our discussion with the representatives, and theoretical provision of figures from National Grid plc, we still have reservations about the amount of exposure we will have to the Extra Low Frequency (ELF) EMFs generated by the Hornsea Three Project cables if they opt for the HVAC option. There would be no public health issue whatsoever if both Hornsea Three and Vanguard/Boreas were to adopt the HVDC option. It was not until 6th May 2018 that any theoretical figures were provided, and not before considerable, significant effort direct campaigning from us to gain any details regarding proposed EMFs from either Company; these details should have been contained within the respective PEIRs. Vattenfall have decided that Vanguard will employ a HVDC transmission system which will allow a significant reduction in harmful EMFs (Other Reference 3). We contest that Ørsted should also utilise HVDC as it will have less environmental impact with no ongoing public health implications regarding EMFs. That said, we, as members of the public, should not have to seek information from the Project's representatives, the details should have been provided within the consultation documents and raises suspicions of what else is being hidden by the NDA. The DECC Code of Practice is a 'Voluntary Code of Practice' which means it holds no legal substance. Should Ørsted install a transmission system that 'theoretically' meets the "voluntary guidelines" but, in practice, the measured field strengths exceed them, how would we, as members of the public, be able to	The Applicant refers to the Applicant's Comments on Relevant Representation RR-017 submitted at Deadline 1 (REP1-131) and Statement of Common Ground between Hornsea Project Three (UK) Ltd and Norfolk Vanguard Ltd and Norfolk Boreas (REP1-222) in respect of the issue of EMF. In respect of the issue of HVAC and HVDC, the Applicant refers to Appendix 22 to Deadline I submission - Transmission System (HVAC/HVDC) Briefing Note (REP1-164).

Interested Party's Written Representation	Applicant's Response
challenge the developer? By way of example, the cladding on Grenfell Tower was installed with the installers and the developers following a "Voluntary Code of Practice" but the cladding was sadly, in all likelihood, the cause of grievous harm and death. Furthermore, the Code of Practice requires the developer to provide: "A calculation or measurement of the maximum fields directly above the cable." That is a 'calculation' and not just a list of figures which are not open to scrutiny. Without the specific design of the cable crossing point and a study of the interaction between both the Hornsea Three cables and those from Vanguard and Boreas this calculation can neither be concluded nor supposed. In conclusion to the EMF issue, the PEIR lacks any detail or acknowledgement for the effect of magnetic fields at the crossing point of the Hornsea Three, Vanguard and Boreas cables. The theoretical figures subsequently provided are not open to scrutiny. The 'Code of Practice' is voluntary and therefore not necessarily legally binding. We reiterate that: where there is doubt, and importantly, lack of scientific evidence to support the argument, the Definitions of Precautionary Principle should be invoked. Within the principle, the World Commission on the Ethics of Scientific Knowledge and Technology under the auspices of UNESCO (amongst other World and European bodies) states: "When human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm ..." and goes onto say that: "The judgement of plausibility should be grounded in scientific analysis." Therefore, planning to create a potentially harmful environment, without plausible scientific research and analysis, could be deemed to be unethical and we will continue to challenge Ørsted on this principle.	
Environmental Impact Assessment "The EIA Directive states that Environmental Statements should include a description of "interrelationships" between environmental aspects likely to be significantly affected by a proposed development. The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Paragraph 5) states that "the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant impacts of the proposed development on the following factors: a) population and human health; b) biodiversity.....; c) land, soil, water, air and climate; d) material assets, cultural heritage and the landscape; e) the interaction between the factors referred to in sub-paragraphs a) to d)." " By omitting the interrelationship of routing the Hornsea Three transmission cables across those of Vanguard and Boreas the conditions of EIA Directive have not been met during the consultation. We ask that the Planning Inspectorate seriously considers why the crossing point was omitted from the PEIR. Also, why are the discussions between Ørsted, Vattenfall and National Grid plc regarding a nationally significant UK infrastructure project, are not fully divulged for public scrutiny?	The Applicant would refer to the Consultation Report, Annex 15: Phase 2 Responses submitted as part of the Application (APP-034). Table 3.1, page 342 and 344 of APP-034 sets out where within the Application documents, a cumulative effects assessment has been undertaken and the conclusions reported. It also provides further discussion on the difference between inter-related effects and cumulative effects.
Conclusion The Hornsea Project Three consultation is incomplete and flawed.	The Applicant does not accept the comment that the consultation process was flawed. The Consultation Report

Interested Party's Written Representation	Applicant's Response
The allocation of the connection point for the developer to connect to the UK NETS is arbitrary and has been left to another 'for profit' company, namely National Grid plc, to make a nationally important decision which has far reaching consequences and dubious commercial intent. There is a lack of detail and discussion surrounding how and why it is necessary for two competing projects to cross their transmission systems. Most importantly, the Hornsea Project Three consultation allows insufficient consideration for any cumulative effects, interrelated effects, or, more importantly, any environmental impact for the cable crossing point. We implore the Planning Inspectorate to reconsider and co-ordinate the routing of off-shore wind farm transmission cables before rural Norfolk is subjected to a prolonged, damaging and disruptive programme of cable laying by successive developers intent on profiteering from permissive legislation.	[APP-034] sets out in detail the consultation process that has been undertaken for Hornsea Three. The relevant planning authorities confirmed that they considered that appropriate and adequate consultation had been undertaken prior to the Application being accepted by the Planning Inspectorate (AoC-001 to AoC-0060. In respect to other matters raised, the Applicant has addressed each of the individual points above.
Email to National Grid – Hornsea 3 Project Connection Points – 7 August 2017. 2. Email reply from National Grid – Hornsea 3 Project Connection Points – 4 September 2017. 3. Email to Dong Energy – Proposed Cable Routing – Hornsea 3 Project – 18 July 2017.	The attachments provide additional context to the individual matters raised and responded to above.

Maritime and Coastguard Agency (REP1-093)

Summary

2.42 The key points raised by the Maritime and Coastguard Agency (MCA) in their Written Representation relate to the following:

- Collision risk modelling and its outputs;
- Principle 8 of the layout development principles and the 150m tolerance;
- The requirement for of a Helicopter Refuge Area; and
- The development consent condition relating to array layout design.

2.43 The Applicant has discussed these points with the MCA and the draft SoCG (REP1-221) shows progress made in these discussions prior to Deadline 1.

2.44 As the MCA's written representation at Deadline 1 (REP1-093) focusses solely on responses to the ExA's First Written Questions, the Applicant has provided responses to the points raised by MCA in the Applicant's comments on responses to the ExA's Written Questions submitted by Interested Parties at Deadline 1.

Response to Maritime & Coastguard Agency

Interested Party's Written Representation	Applicant's Response
Q1.5.1 1).The MCA is content with the approach to the collision risk modelling undertaken as part of the Navigation Risk Assessment for Hornsea Three. We note the 21.4% increase in collision frequency compared to the pre-windfarm result. We further note the cumulative effect assessment which incorporates Hornsea Projects One, Two and Three giving a major collision return period increase of 9.72%, an increase of one in 116 years to one in 105 years. 2).This increase in risk is only tolerable with the appropriate risk mitigation as detailed in the Navigation Risk Assessment, and a layout of wind turbine generators (and other associated windfarm infrastructure) which is in accordance with our Marine Guidance Note (MGN) 543. The layout is of significant concern for MCA going forward, and the design principles have not yet been agreed by MCA. Although we support the establishment of the design principles, we should not be held to account should we not have considered every possible future eventuality based on the information provided within the current design principles. 3).Therefore, the MCA requests the option and ability to consider any layout plans on a case by case basis in line with MGN 543. This includes our strong recommendation that at least two lines of orientation are included within the layout design. This is not only for search and rescue purposes; multiple lines of orientation provide alternative options for vessel passage planning. We know that by far the safest way to navigate through a windfarm is when the turbines are in straight lines, with multiple lines of orientation, which gives a clear line of sight of entry and exit. If a master/skipper decides to go through a windfarm, they tend to place themselves equidistant between the turbines on either side, and this helps counter the environmental effects on handling, and this is compromised with a random turbine layout.	The Applicant would refer the ExA to Q1.5.1 in the Applicant's comments on responses to the ExA's Written Questions submitted by Interested Parties at Deadline 1.

Interested Party's Written Representation	Applicant's Response
Q1.5.4 *The MCA [RR-060] considers that the 150m tolerance referred to in Principle 8 of the Layout Development Principles [APP-091] is excessive and would impede search and rescue (SAR) coverage.* What would the MCA regard as an acceptable tolerance? The MCA request that turbines are constructed in straight lines, with a minimum of two lines of orientation, to maintain the safety of navigation and our search and rescue obligations. Access to windfarms by helicopter and vessels during an emergency situation, and by vessels should they decide to transit through a windfarm, is a complex process, especially in poor weather conditions, and therefore mitigations are required to ensure it is as safe and feasible as possible. Standard search patterns are linear to allow for an effective coverage of an area, and wind turbines will degrade the search capability by restricting search spacing and increasing crew workload - therefore reducing search effectiveness. Within Principle 8, the developer may build turbines in an irregular layout anywhere within that 300m corridor, which would significantly impact the ability to search and/or rescue. As a result, the MCA would be content with a tolerance of 50m with the understanding that the developer aims to construct turbines along the centreline and only deviating if conditions/seabed do not allow for a straight line.	The Applicant would refer the ExA to Q1.5.4 in the Applicant's comments on responses to the ExA's Written Questions submitted by Interested Parties at Deadline 1.

Interested Party's Written Representation	Applicant's Response
Q1.5.5 *The MCA [RR-060] considers that, in the interests of SAR capability, an assessment should be made of the feasibility of providing a helicopter refuge area perpendicular to the turbine development corridors.* What would be the advantages and disadvantages of incorporating a helicopter refuge area as suggested by the MCA? As raised in response to Q1.5.4 access into windfarms is complex, and the MCA must maintain the capability to deliver an effective SAR service anywhere within the UK Search and Rescue Region. A SAR lane which is of significant length (c10nm) is a concern as it limits the manoeuvring options for a helicopter whilst in the lane, e.g. when the aircraft can either climb out of, or transit to the end of the lane before making a turn and continuing its search. For a lane of 10nm, it would take 12 minutes before the helicopter could change track at ~50kts, which is a significant amount of time during an emergency situation. For Hornsea Three, at least one of the proposed lanes was in excess of 20nm. Generally, helicopters also have to enter a windfarm from low level and along a SAR lane, rather than dropping down from above, particularly through cloud, and a helicopter refuge area serves a number of key purposes; 1) it can allow additional routes into a windfarm improving the access options; 2) it allows for an area in which the helicopter can turn along a search leg, so an aircraft doesn't necessarily have to climb out and go back to the start of the next lane; and 3) it also allows for a 'safe' area for an aircraft to re-familiarise with the surroundings, re-orientate their position within the windfarm or during an aircraft emergency. This is a fundamental requirement when windfarms are over c10nm and is particularly important when there is less than two lines of orientation. *Are there examples of offshore windfarms with turbine development corridors of a length comparable to this proposal?* There is nothing currently constructed of this scale that has required a refuge area. However as more developments are constructed, refuge areas will continue to be requested where the lanes are sizeable, and they are assessed as being required by SAR and navigation safety specialists. *If there are, what approach was taken to maintaining SAR capability in those examples?* See above.	The Applicant would refer the ExA to Q1.5.5 in the Applicant's comments on responses to the ExA's Written Questions submitted by Interested Parties at Deadline 1.
Q1.13.66 The MCA agrees entirely with the MMO's objection to this aspect of the condition. We cannot rely solely on the design principles to deliver an acceptable layout in accordance with MGN 543. The design principles are a tool for the applicant, the layout must still be approved by the MCA, Trinity House and the MMO despite following the design principles.	The Applicant would refer the ExA to Q1.13.66 in the Applicant's comments on responses to the ExA's Written Questions submitted by Interested Parties at Deadline 1.

Interested Party's Written Representation	Applicant's Response
Q1.13.67 The actual layout should be approved by the MMO once the MCA and Trinity House have confirmed that they accept the layout in accordance with MGN 543.	The Applicant would refer the ExA to Q1.13.67 in the Applicant's comments on responses to the ExA's Written Questions submitted by Interested Parties at Deadline 1.

Edgefield & Corpusty & Saxthorpe Parish Councils (REP1-097)

Summary

2.45 Edgefield & Corpusty & Saxthorpe Parish Councils have submitted one written representation at Deadline 1 (REP1-097). The written representation raises concerns regarding the landscape and visual impacts from the onshore HVAC booster station, the choice of the transmission system and traffic impacts on the B1149.

2.46 The Applicant refers to the Applicant's Comments on Relevant Representation RR-015 submitted at Deadline 1 (REP1-131), as well as Appendix 22 to the Applicant's response to Deadline 1 (REP1-164) which provides commentary on the inclusion of both HVAC and HVDC transmission systems within the project envelope.

Response to Edgefield & Corpusty & Saxthorpe Parish Councils

Interested Party's Written Representation	Applicant's Response
Both Edgefield & Corpusty & Saxthorpe Parish Councils have the following continuing concerns: 1. There have still not been any detailed drawings of the proposed booster station at Little Barningham. This is very concerning, as there are no detailed plans for the visual impact or screening to mitigate this, along with the potential noise and light pollution which will inevitably occur. 2. The two phase impact which will occur, should Orsted proceed with the AC plans, will be catastrophic for both Parishes, for tourism, locals and farmers alike. To suffer the destruction on one occasion for DC cabling will be bad enough, but to come back at a later date to dig up the areas again is unfair for all involved. 3. The potential effect for Corpusty & Saxthorpe on the B1149 is also a concern. Already, we have large numbers of HGV movements on a daily basis due to the Frimstone quarry vehicles. To add to this with the inevitable HGV traffic increase will mean that pedestrians crossing the B1149 in the village will be increasingly dangerous and will be noisy for properties nearby.	The Applicant would refer to the Applicant's Comments on Relevant Representations RR-015, RR-026 and RR-050 submitted at Deadline 1 (REP1-131) which responds to points relating to transmission technology, traffic, noise and landscape and visual impacts at the onshore HVAC booster station. In respect to landscaping, the Applicant's Comments on Relevant Representation RR-026 sets out commitments made by the Applicant post-application, including planting section of the landscape planting at the commencement of works at the onshore HVAC booster station. The link immediately before and along the B1149 within Edgefield (link 59) is included in the 'Daily Construction vehicle movements' in Table 1.6 of Volume 6, Annex 7.1: Transport Assessment (APP-159 / REP1-162). This predicts 137 staff and 373 HGV movements per day. Volume 6, Annex 7.2: Description of Network Links and Sensitivity (APP-160) report the Link to be a medium sensitivity receptor. As a result of the predicted HGV movements, the CTMP will identify, in due course, soft intervention measures to be adopted to ensure awareness of existing pedestrian activity along the B1149 during the construction period.
Now that Vattenfall is able to commit to HVDC - a much better outcome for Norfolk - we call upon Orsted to follow its lead by delivering the most environmentally friendly project possible – with HVDC at the heart of the scheme.	Please see Appendix 22 to the Applicant's response to Deadline I (REP1-164) in respect to inclusion of both HVAC and HVDC transmission systems in the project envelope.

Interested Party's Written Representation	Applicant's Response
Both Parish Councils would like to attend any site visit for the Barningham booster station site, so please could you contact me to let me know dates and times. They would also like to send representation to any relevant hearing, so please keep me updated with agendas and dates.	Noted

Great Yarmouth Borough Council (REP1-106)

Summary

2.47 Great Yarmouth Borough Council have submitted one written representation at Deadline 1 (REP1-106) which confirms that all matters raised previously have since been satisfactorily addressed within the Statement of Common Ground between Great Yarmouth Borough Council and Hornsea Project Three submitted at Deadline 1 (REP1-202).

Response to Great Yarmouth Borough Council

Interested Party's Written Representation	Applicant's Response
Thank you for notifying Great Yarmouth Borough Council, an 'Interested Party' in relation to the examination of the Hornsea Project Three Offshore Wind Farm. This letter has been written at officer level, in response to your letter dated 9 October 2018. The Council does not seek to provide a Written Representation (WR) for the examination of the above project, nor provide any additional comments beyond our S.56 consultation representation, submitted on the 20 July 2018. Issues that were raised during the previous consultation stage have since been satisfactorily considered through a Statement of Common Ground (SoCG) between the Council and Orsted, dated October 2018. If you wish to discuss these matters in any further detail, please do not hesitate to contact me.	Noted. The Applicant would refer to the Statement of Common Ground between Great Yarmouth Borough Council and Hornsea Project Three submitted at Deadline 1 (REP1-202).

Historic England (REP1-107)

Summary

2.48 The key points raised by Historic England (HE) in their Written Representation relate to the following:

Onshore Heritage Assets

2.49 The Applicant notes Historic England's clarification in their Written Representation (REP1-107) that potential impacts on Grade II listed buildings local to the area (e.g. Keswick Hall) and the local Conservation Areas which lie to the north of the development are primarily issues for the Local Planning Authority and their Conservation Officers and not Historic England. On this basis the Applicant notes that any remaining issues regarding these assets will be discussed with the relevant local planning authority. The Applicant notes that a clarification note on the impacts at Keswick Hall and its associated parkland will be included in its submission at Deadline 3 following discussion with South Norfolk Council.

2.50 The Applicant is in agreement that there would be a significant impact in EIA terms to the setting of Mangreen Hall and Gowthorpe Manor. There is also agreement between the Applicant and Historic England that although there would be harm to the assets, the harm is less than substantial, and that this harm should be weighed against the public benefits of the proposal.

Marine Archaeology

2.51 With respect to marine archaeology, the Applicant notes several areas where HE finds the Environmental Statement to be satisfactory including:

a. The data used to inform baseline characterisation are adequate with the exception that there is a data gap over the area of the offshore cable corridor where the offshore cable routes have been amended since the Preliminary Environmental Information Report (PEIR), and request clarity on the programme for conducting surveys and reporting within these areas. With respect to further surveys, the Applicant refers the Ex.A to the Applicant's response to Ex.A question Q1.8.18 at Deadline 1 (REP1-122).

b. The Maximum Design Scenario (MDS) and impact assessment methodology presented is reasonable and comprehensive.

c. The findings of the impact and cumulative assessments are adequate.

d. 'Designed-in measures' proposed to reduce the potential for impacts on marine archaeology are considered appropriate.

e. Subject to adequate discharge, HE appears to agree with the Applicant's assessment that the effect of sediment removal or disturbance of sediments on near-surface prehistoric land surfaces will be of minor adverse significance.

2.52 Although in general agreement with the above, the Applicant notes HE seeks further clarification on some points and welcomes the opportunity to meet at HE's earliest convenience. The Applicant has provided a SOCG to Historic England and HE have informed the Applicant that it plans to complete and submit an agreed SOCG as soon as practicably possible.

Written Schemes of Investigation

2.53 The Applicant will submit an Outline Onshore Written Scheme of Investigation (WSI) at the later deadline as soon as practical.

2.54 The Applicant notes that the Outline WSI for marine archaeology submitted as part of the Environmental Statement (Volume 5, Annex 9.2: Outline Written Scheme of Investigation of the Environmental Statement; APP-115) is in draft form to which HE has made several comments in their written representation below. Further engagement with HE is actively being sought and it is intended that these detailed comments will be addressed through amendments and finalising of the draft Outline Offshore WSI prior to commencement.

Response to Historic England

Interested Party's Written Representation	Applicant's Response
Summary 1. Introduction 2. Comments in relation to Environmental Statement: Volume 3, Chapter 5 – Historic Environment and Environmental Statement: Volume 3, Chapter 5: Annex 5.7: Historic Environment Visualisations 3. Comments in relation to the Onshore WSI 4. Comments in relation to the Environmental Statement: Chapter 3 – Project Description – PINS Document Reference A6.1.3 APFP Regulations 5(2)(a): 5. Comments in relation to the Environmental Statement: Volume 2, Chapter 9 – Marine Archaeology – PINS Document Reference: A6.2.9 APFP Regulation 5(2)(a) (dated May 2018), prepared by RPS on behalf of Ørsted Power (UK) Ltd: 6. Comments in relation to the Environmental Statement: Volume 5, Annex 9.1 – Marine Archaeology Technical Report PINS Document Reference: A6.5.9.1 APFP Regulation 5(2)(a): 7. Comments in relation to the Draft Development Consent Order including Draft Deemed Marine Licences PINS Document Reference: A3.1 Regulation 5(2)(b): 8. Comments in relation to the Environmental Statement: Volume 5, Annex 9.2 – Outline Written Scheme of Investigation PINS Document Reference: A.6.5.9.2 APFP Regulation 5(2)(a): 9. Comments in relation to the Environmental Statement: Volume 4, Annex 3.6 – Offshore Operation and Maintenance Licensable Activities PINS Document Reference: A6.4.3.6 APFP Regulations 5(2)(a):	Noted.

Interested Party's Written Representation	Applicant's Response
Historic England's written representation considers in more detail concerns we have already raised in relation to the impact of the Mangreen substation on the significance of a number of highly designated heritage assets through development within their setting. In particular these are the Grade II* listed buildings located closest to the substation of Gowthorpe Manor House and Barn, and Mangreen Hall, and the Grade II* registered park and garden and Grade II* listed church at Intwood. We have also raised concerns about the impact upon the Grade II listed Keswick Hall. In coming to this view we have taken into consideration specific historic environment visualisations chapter and the Historic Environment Chapter of the Environmental Statement. We have also put this position in relation to Planning Policy, and we recommend that in determining the application the examining authority should take into consideration the significance of the heritage assets and weigh the harm which would be caused to their significance against the public benefits of the proposed development. Consideration should be given as to whether the applicant has taken all possible steps to avoid the harm, or if this is not deemed possible by the examining authority, to minimise the harm the development would cause. We have also made specific comments on these chapters of the ES: · Volume 3, Chapter 5 – Historic Environment and Environmental Statement · Volume 3, Chapter 5: Annex 5.7: Historic Environment Visualisations · Outline Onshore Written Scheme of Investigation(dated July 2018 but not provided in the ES) · Chapter 3 – Project Description – PINS Document Reference A6.1.3 APFP Regulations 5(2)(a): · Volume 2, Chapter 9 – Marine Archaeology – PINS Document Reference: A6.2.9 APFP Regulation 5(2)(a) (dated May 2018), prepared by RPS on behalf of Ørsted Power (UK) Ltd: · Volume 5, Annex 9.1 – Marine Archaeology Technical Report PINS Document Reference: A6.5.9.1 APFP Regulation 5(2)(a): · Draft Development Consent Order including Draft Deemed Marine Licences PINS Document Reference: A3.1 Regulation 5(2)(b): · Volume 5, Annex 9.2 – Outline Offshore Written Scheme of Investigation PINS Document Reference: A.6.5.9.2 APFP Regulation 5(2)(a): These comments are in part to ensure the Offshore WSI would be fit to enable the implementation of appropriate mitigation measures to avoid and reduce the impact from the development on the offshore historic environment, and develop appropriate methodologies for further investigations within the project area, prior to the commencement of construction activities.	Noted.

Interested Party's Written Representation	Applicant's Response
1. Introduction 1.1. The Historic Buildings and Monuments Commission for England (HBMCE),known as Historic England, are the Government's adviser on all aspects of the historic environment in England - including historic buildings and areas, archaeology and historic landscape – and have a duty to promote public understanding and enjoyment. HBMCE are an executive Non-Departmental Public body sponsored by the Department for Digital Culture, Media and Sport (DCMS) and we answer to Parliament through the Secretary of State for Digital Culture, Media and Sport. Our remit in conservation matters intersects with the policy responsibilities of a number of other government departments – particularly the Ministry of Housing, Communities and Local Government, with their responsibilities for land use planning matters. The National Heritage Act (2002) gave HBMCE responsibility for maritime archaeology in the English area of the UK Territorial Sea. 1.2. In previous correspondence in relation to this project and in our Section 56 Representation (dated 22nd July 2018) we noted that the applicants had provided a comprehensive Environmental Statement, however we identified that this development had the potential to impact upon the historic environment, and that this impact would be significant in relation to a number of heritage receptors and in relation to EIA policy. We also stated that a number of specific points would be addressed in our full Written Representation in relation to the on- and off-shore sections of the Environmental Statement. This letter will therefore provide that additional detail in relation to the impact of the proposed HVDC Converter/HVAC substation at Mangreen on the significance of a number of designated heritage assets through development within their setting. In particular, the three Grade II* listed buildings located close to the substation (Mangreen Hall, Gowthorpe Manor House and Barn), and the grade II* registered park and garden and Grade II* listed church at Intwood Hall. We have previously noted the potential impact upon a number of Grade II listed buildings (e.g. Keswick Hall) and the local Conservation Areas which lie to the north of the development; however these are primarily issues for the Local Planning Authority and their Conservation Officers and other specialist advisors and will not be addressed further in this representation.	Noted.

Interested Party's Written Representation	Applicant's Response
1.3. As set out in our s.56 representation, this letter will also address matters relating to the outline onshore Written Scheme of Investigations (WSI), the outline offshore WSI and other matters relating to the marine historic environment as set out in the following documents and chapters: · Environmental Statement: Volume 3, Chapter 5 – Historic Environment and Environmental Statement: Volume 3, Chapter 5: Annex 5.7: Historic Environment Visualisations · Outline Onshore Written Scheme of Investigation(dated July 2018 but not provided in the ES) · Environmental Statement: Chapter 3 – Project Description – PINS Document Reference A6.1.3 APFP Regulations 5(2)(a): · Environmental Statement: Volume 2, Chapter 9 – Marine Archaeology – PINS Document Reference: A6.2.9 APFP Regulation 5(2)(a) (dated May 2018), prepared by RPS on behalf of Ørsted Power (UK) Ltd: · Environmental Statement: Volume 5, Annex 9.1 – Marine Archaeology Technical Report PINS Document Reference: A6.5.9.1 APFP Regulation 5(2)(a): · Draft Development Consent Order including Draft Deemed Marine Licences PINS Document Reference: A3.1 Regulation 5(2)(b): · Environmental Statement: Volume 5, Annex 9.2 – Outline Offshore Written Scheme of Investigation PINS Document Reference: A.6.5.9.2 APFP Regulation 5(2)(a): 1.4. This statement also aims to address the issue raised in the 'Examining Authority's Written Questions and Requests for Information' as issued by the Planning Inspectorate on 09th October 2018. Specifically those questions in Section 8 'Historic Environment' Question Reference Q1.8.1 to Q1.8.19	Noted.
2.1. As discussed above, Historic England's concerns relate the impact of the proposed HVDC Converter/HVAC substation at Mangreen on the significance of three nearby highly listed heritage assets, Mangreen Hall, Gowthorpe Manor (including the barn) and Intwood Hall (including its registered landscape):	The Applicant would direct the Ex.A to the Applicant's Comments to point 2.9 of Historic England's Written Representation (REP1-107) below.

Interested Party's Written Representation	Applicant's Response
2.2. Mangreen Hall is a house with a main façade of c.1700 fronting an earlier core with later additions. The façade combines a handsome classical front with characterful shaped gables, an expressive design reflecting the fashions of the proceeding century. Internally it contains a fine staircase that is contemporary with the facade. The house lies within its grounds which contain various ancillary buildings. The historic farmstead of c.1800 lies on the south side of the lane.This small group sits in an isolated position within the wider rural landscape which (despite the main road to the north) maintains the historic context of the Hall and reflects its function as a country house at the centre of an agricultural estate. The landscape also contributes to the aesthetic character of the site. The house is listed grade II* and the lodge, cottage and farmstead grade II.	The Applicant would agree with Historic England's description of Mangreen Hall. The Applicant would direct the Examining Authority to the Applicant's comments to point 2.9 of Historic England's Written Representation (REP1-107) below.
2.3. The Hall is the closest listed building to the proposed substation which lies to the North West. A viewpoint has been produced from just north of Mangreen Lane (between the Hall and substation) looking towards the substation. The wire lines indicate the substantial scale of the substation development from this location. Although the 'year fifteen' photomontage shows this screened by a hedge, this is presumably because of the location it is taken from on the hedge line itself. The applicants have not provided a view or photomontage from the Hall, from its grounds or from land just to the north. The assessment notes the Hall faces north towards the substation and that historic maps show a tree lined avenue to the north which suggest this land formed part of a formal landscape or approach to the Hall. There are some ancillary buildings and planting around the Hall, which is quite dense to the east and west. However, the scale of the substation means it would be very visible in views from the surrounding landscape and potentially from the Hall and its grounds. Its presence in the landscape would impact on the way in which the Hall is experienced from the west and north and potentially in longer views from the south. The development would erode the rural landscape setting that contributes to the significance of the Hall and would result in a considerable degree of harm.	The Applicant refers the Ex.A to the Applicant's response to ExA's Written Question 1.8.4 (REP1-122) regarding the location of the viewpoints used in Volume 6, Annex 5.7: Historic Environment Visualisations of the Environmental Statement (APP-155). The Applicant refers the Ex.A to the Applicant's Comments to point 2.9 of Historic England's Written Representation (REP1-107) below.

Interested Party's Written Representation	Applicant's Response
2.4. Gowthorpe Manor appears to be the product of several building phases including two in the sixteenth century, the second encasing the earlier timber framed house in brick. It was then subsequently altered in the later seventeenth and early twentieth centuries. The Manor comprises both brick and timber framed ranges and decorative details including stepped gables and tall chimneys. The house and adjacent seventeenth century barn are listed grade II*; a garden building, barn and walls are listed grade II. There are modern farm buildings to the north of the farmstead. The historic buildings form a handsome group reflecting the status of the building and its owners. They occupy an isolated position in the rural landscape. Like Mangreen Hall this is a country house at the centre of an agricultural estate and the surrounding rural landscape contributes to understanding how the buildings functioned historically and the aesthetic character of the site.	The Applicant would agree with Historic England's description of Gowthorpe Manor. The Applicant refers the Ex.A to the Applicant's Comments to point 2.9 of Historic England's Written Representation (REP1-107) below.
2.5. The proposed substation site is to the north of Gowthorpe Manor and a viewpoint has been taken from the grounds to the north. The assessment notes the Hall faces away from the substation and the viewpoint taken from near the modern barns shows the proposed substation screened behind a small area of hedge. We are however aware that there are gaps in the hedge to either side of this location and we believe it is likely that the substation would be visible from the land that surrounds the heritage assets. The development would impact on the way the manor is experienced, and the erosion of the rural setting would again cause considerable harm to the significance of the listed buildings.	The Applicant refers the Ex.A to the Applicant's response to ExA's Written Question 1.8.4 (REP1-122) regarding the location of the viewpoints used in Volume 6, Annex 5.7: Historic Environment Visualisations of the Environmental Statement (APP-155). The Applicant refers the Ex.A to the Applicant's Comments to point 2.9 of Historic England's Written Representation (REP1-107) below.
2.6. The historic landscape at Intwood Hall comprises the gardens and parkland to the country house. The gardens include several walled compartments dating from the mid sixteenth century. The park was laid out in the mid nineteenth century and is roughly fan shaped with the hall and park facing out the south east as the park expands in this direction. The register of historic parks and gardens describes how this looks across a landscape of well wooded farmland and that the Hall, located on the highest ground, enjoys views across the park to the countryside beyond. Although the power lines are visible from this point the landscape is otherwise essentially rural. This wider rural landscape was intended to contribute to the enjoyment of the park and the rural landscape illustrates the function of Intwood as a country house. It is listed grade II* and a number of the ancillary structures are listed grade II. The medieval church which was heavily restored in the nineteenth century lies on the north eastern edge of the park and is also grade II*.	The Applicant would agree with Historic England's description of Intwood Hall. The Applicant refers the Ex.A to the Applicant's Comments to point 2.9 of Historic England's Written Representation (REP1-107) below.

Interested Party's Written Representation	Applicant's Response
2.7. The proposed substation site lies to the east of Intwood, the direction that is overlooked by the hall and park. A visualisation has been produced from Intwood Lane which cuts through the park, just to the south of the church. There are two small areas of woodland between the Intwood Hall and the substation. These help to filter views of the substation from this location leaving only a section of the building visible between the two woods and partly filtered by other planting. However, it is possible that from the slightly elevated position around the Hall and when moving around the parkland the visibility of the development will change and may increase. This would erode the rural character of the wider landscape and potentially create a modern feature that would detract from the natural focal points of the areas of woodland on either side. This would result in some harm to the significance of the historic landscape. The Report notes views from church would be screened.	The Applicant refers the Ex.A to the Applicant's response to ExA's Written Question 1.8.4 (REP1-122) regarding the location of the viewpoints used in Volume 6, Annex 5.7: Historic Environment Visualisations of the Environmental Statement (APP-155). The Applicant refers the Ex.A to the Applicant's Comments to point 2.9 of Historic England's Written Representation (REP1-107) below.
2.8. In relation to Historic Environment Policy the National Planning Policy Framework requires that when considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance, paragraph 193. It continues that any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification, paragraph 194. The significance should be taken into account when considering the impact of a proposal on a heritage asset, to avoid or minimise any conflict between the heritage asset's conservation and any aspect of the proposal, paragraph 190. Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, paragraph 196.	The Applicant confirms that the assessment of impacts on heritage assets (as reported in Volume 3, Chapter 5: Historic Environment of the Environmental Statement (APP-077)) has had regard to the guidance in the NPPF. The Applicant refers the Ex.A to the Applicant's Comments to point 2.9 of Historic England's Written Representation (REP1-107) below.

Interested Party's Written Representation	Applicant's Response
2.9. In summary, the analysis set out above illustrates how the rural landscape contributes to the significance of the historic buildings at Mangreen Hall and Gowthorpe Manor and the historic landscape at Intwood Hall. A more detailed analysis of the significance and impacts in the Historic Environment section of the Environmental Statement would have been helpful together with other visual information to illustrate the impact on Mangreen and Gowthorpe. However, the images that have been produced to illustrate the proposed substation/convertor development do show the scale of this within the landscape. It is clear that this development would erode the rural landscape setting to the grade II* sites at Mangreen Hall and Gowthorpe Manor causing considerable harm to their setting. It would also result in some harm to the grade II* historic landscape at Intwood Hall. We confirm our view that there is a significant impact in EIA terms, and in line with planning policy the harm would need to be weighed against the public benefits of the proposal. As stated in the NPPF any harm requires clear and convincing justification and we would want to be reassured that should the DCO be granted the balancing exercise has been undertaken and that there the public benefit can clearly be demonstrated to outweigh this harm.	The Applicant notes Historic England's agreement that the visualisations for Mangreen Hall, Gowthorpe Manor and Intwood Hall (provided in Volume 6, Annex 5.7: Historic Environment Visualisation of the Environmental Statement (APP-155)) illustrate the scale of the onshore HVDC converter/HVAC substation. The Applicant would confirm their view that there is a significant impact in EIA terms, and in line with planning policy the harm would need to be weighed against the public benefits of the proposal. The Applicant would direct the Ex.A to Volume 3, Chapter 5, Historic Environment of the Environmental Statement (APP-077) which assesses the significance of effect of Hornsea Three on Mangreen Hall as being of moderate adverse significance, which is significant in EIA terms (at paragraph 5.11.1.69) and the significance of effect of Hornsea Three on Gowthorpe Manor as being of moderate adverse significance, which is significant in EIA terms (at paragraph 5.11.1.60). In addition, the significance of effect of Hornsea Three on Intwood Hall is assessed as being of minor adverse significance, which is not significant in EIA terms (at paragraph 5.11.1.157). On this basis there is broad agreement between Historic England and the Applicant in that there would be harm to the assets, the harm is less than substantial and that this harm should be weighed against the public benefits of the proposal.
3.1. In relation to the onshore WSI we are aware that this is primarily a matter for the Local Planning Authority's specialist Archaeological Advisors. We are however concerned that the Onshore WSI has not been included in the full ES as submitted.	The Applicant will submit as part of its Deadline 3 submission an outline onshore Written Scheme of Investigation (WSI) and is currently developing the contents in consultation with Norfolk County Council Environmental Services.
3.2. We would however wish to reinforce the point there is a need for a full and comprehensive survey of the route to be undertaken prior to any ground works, or preliminary access works being undertaken. Whilst we accept that this work is due to be undertaken post-consent, its needs to be recognised by the applicant that there is a high potential for new heritage assets to be identified as part of this work, and these assets would be of undetermined significance at this stage.	The Applicant is in agreement with the approach to carry out a campaign of geophysical survey along the cable corridor, with details of the scope to be determined through ongoing discussions with Norfolk County Council Environmental Services regarding the Outline onshore WSI. Details of pre-construction survey methodologies and the process for managing new heritage asset finds are also being developed in consultation with Norfolk County Council Environmental Services and will be detailed within the Outline Onshore WSI to be submitted at Deadline 3.
4.1 We acknowledge that this chapter sets out the project design envelope for the onshore and offshore elements, in particular the details of the maximum design scenario. In particular, we note that Section 3.3 'Hornsea Three Boundary' sets out the parameters of the project, including; the array area, the offshore cable corridor, and the onshore cable corridor, and Section 3.4 'The Agreement for Lease (AfL) area' sets out the areas agreed to by leased by The Crown Estate, as approximately covering 696km² as a diamond shape 29km E-W and 35km N- S.	Noted.

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4.2 We request clarification as to whether any consideration has been given at this stage to the location of working areas (i.e. anchor areas, wet storage, etc.), or whether they are only identified as being within the Development Consent Order (DCO) boundaries.	The Applicant notes that temporary working areas (e.g. areas adjacent to the offshore cable corridor that may be used for temporary activity such as anchor placement) are included within the DCO boundaries (see definition of Work No. 4 in Schedule 12, Part 1(3) pf the draft DCO). These areas may be affected by activities such as anchor placement and disposal of dredged material (which will also occur within the offshore cable corridor) the effects of which on marine archaeology receptors have been fully considered within Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement (APP-069). It is not currently possible to specify where these activities may occur within the DCO boundary (as this will be informed by future detailed Site Investigation works and final scheme design), however activities such as anchor placement will also be subject to the designed in-mitigation measures outlined in section 9.10 of Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement (APP-069), e.g. avoidance of direct impacts on features of archaeological importance.
4.3 We note from paragraph 3.6.2.2 that a number of pre-construction surveys will be undertaken 1-2 years prior to the start of offshore construction works. The Retained Archaeologist and Archaeological Curator must be given the opportunity to review survey specifications and plans, as set out in the project Written Scheme of Investigation (Volume 5, Annex 9.2), in order to provide input into any surveys undertaken. This is to ensure the collection of sufficient quantity and adequate quality data for archaeological analysis which would feed into mitigation measures applied for archaeological receptors.	The Applicant acknowledges and agrees with HE on this point.
4.4 Within paragraphs 3.6.2.28-30, regarding Pre-Lay Grapnel Runs, no details are provided as to precisely which cables will be affected (array, interconnector, and export cables) or the width of the potential impact along the final cable route. It is assumed that this activity will be within the boundary of the pre-construction clearance works, but this is not clear and should be explained.	A Pre-Lay Grapnel Run (PLGR) may be required for site preparation for installation of array cables, interconnector cables or offshore export cables. The width of potential impact for the PLGR, if required, will not exceed the maximum design parameters for sandwave clearance, boulder clearance and cable installation as described in the Environmental Statement, Volume 1, Chapter 3: Project Description [APP-058].
4.5 We note from Table 3.9 'Foundation options for turbines and offshore structures' that all concepts of floating foundations have been removed as an option. However, there is no detailed information provided within paragraphs 3.6.9.28-31 in regards to the installation process for subsea booster stations. We would therefore require further details of the installation methodology, when available, for review to ensure that all impacts to archaeological receptors have been considered adequately	The Applicant has detailed those foundations types that may be used for each project component in Table 3.9 of 6.1.3 of the ES Volume 1, Chapter 3: Project Description [APP-058] and described their maximum design parameters in Tables 3.10 to 3.13. The installation processes for such foundation types are described in subsequent paragraphs throughout the Project Description. The broad foundations types described for the booster station are similar to those described for other foundations and therefore, the installation processes will be similar as well. The Applicant can confirm that full details of the construction and installation process of the final scheme design will be included within the Construction Method Statement (as committed to at 13 (1) (c) and 14 (1) (c) within the draft transmission and generation asset DMLs respectively) and therefore, Historic England will have opportunity to comment on the final proposals.

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5.1 We note from paragraph 9.3.1.1 that there are two study areas considered within the assessment; one – the Hornsea Three marine archaeology study area, encompassing the array area, offshore cable corridor and temporary working areas of 600m either side, and the intertidal area seaward of MHWS; two – the regional marine archaeology study area – defined as a 20km buffer around the array area and offshore cable corridor, extended to include Hornsea One and Two.	Noted.
5.2 We acknowledge the detail of the assessment as presented within this chapter, and we are inclined to accept that the data available for the ES was adequate to inform a suitable baseline at this stage. However, we wish to see further detail regarding the delivery of a full baseline across the entire area to be impacted post-consent. In particular, we note from paragraph 9.6.2.2 that there is a data gap over the area of the cable route where the route has been amended since the Preliminary Environmental Information Report (PEIR). As such, we would wish to see further information clearly demonstrating the area where this data gap exists, and the programme for conducting surveys within these area(s).	The Applicant can confirm that within Condition 17 (generation assets) and Condition 18 (transmission assets) of the draft DMLs, it has committed to full coverage surveys of the seabed of the areas within which construction activity will take place. The outputs of these surveys will be used to inform the WSI as outlined within Section 4.8 of the in-Principle Monitoring Plan (as submitted at Appendix 2 of the Applicant's response to Deadline 1). Historic England will therefore have full insight into this data and will have the opportunity of working with the project as it finalises it design. The Applicant also refers the Ex.A to the Applicant's response to Ex.A question Q1.8.18 at Deadline I (REP1-122). This will be noted in the draft Statement of Common Ground (SoCG) and discussed further with HE.
5.3 Furthermore, we are in general content that Table 9.8 'Maximum design scenario considered for the assessment of potential impacts on marine archaeology' presents a reasonable and comprehensive scenario, and with the impact assessment methodology for archaeological receptors as presented within Section 9.9.	The Applicant notes that HE is content with both the maximum design scenario and the impact assessment methodology. This agreement will be noted in the SoCG with Historic England.
5.4 An assessment of the significance of impacts is presented by receptor and impact type within Section 9.11. Beyond our comment made in reference to paragraph 9.11.1.15 below, we are content that the impact assessment is adequate. Furthermore, we are content with the cumulative assessment, as presented in Section 9.13. Therefore, subject to the production and agreement with Historic England of a Written Scheme of Investigation (WSI), its implementation and the further analysis and interpretation of data as set out in the WSI, we are inclined to agree with the summary of the impact assessment as set out in in Section 9.16 'Conclusion and Summary'. However, we wish to make the following comments regarding the detail presented within this chapter as follows.	The Applicant notes that (notwithstanding the comment made in reference to paragraph 9.11.1.15 of Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement; APP-069) HE is content that the impact assessment is adequate. The Applicant further notes that HE is content with the cumulative assessment, as presented in Section 9.13 of Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement. This agreement will be noted in the draft SoCG with Historic England.
5.5 We requested in our advice to the PEIR that the date range for the Pleistocene period be added into Section 1.5.1.6. This has not been done, despite the fact that the Pleistocene period is mentioned in Section 1.6.2.5.	The Applicant notes this oversight and acknowledges the HE comment that the Pleistocene period extends between c. 2.5 million years bp to c. 11,700 years bp as suggested in the HE section 42 consultation, but notes that it does not have a material effect on the assessment presented.

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5.6 We note that Section 9.4 'Planning policy context' details the relevant policies with marine archaeology provisions, including the Energy NPS and Renewables NPS, and the UK Marine Policy Statement. However, we further note that the Marine and Coastal Access Act 2009 is not listed within this section. Similarly, the relevant heritage legislation (i.e. Protected Wrecks Act 1973) is not included within this section, and are instead presented solely within the Marine Archaeology Technical Report. As such, this matter is not represented in a logical manner between the chapter and associated appendices and must be resolved.	The comments in relation to the inconsistencies between the Section 9.4 of Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement (APP-069) are noted, however, the Applicant would note that each of the relevant pieces of legislation were considered in the impact assessment where necessary, and the drafting of the Outline Offshore Written Scheme of Investigation (APP-115) and therefore these inconsistencies have no material effect on the assessment presented.
5.7 Within Table 9.1 'Summary of NPS EN-3 provisions relevant to this chapter' the Marine Archaeology Technical Report appears to have two different references in this cell, and therefore needs to be corrected.	The Applicant notes this error in Table 9.1 of Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement (APP-069), but notes that it does not have a material effect on the assessment presented
5.8 Within Table 9.3 reference is made to the 'Geophysical WSI'. However, it should be noted that this document is not, and should not be referred to as, a WSI. A single WSI will be produced for the offshore elements of this project, to which Method Statements, such as the one produced for geophysical survey interpretation, must be appended.	The Applicant acknowledges and agrees with the HE clarificatory comment on this point.
5.9 Table 9.4 'Summary of key desktop reports' presents the main resources used in the desk-based assessment. There are a number of datasets listed, and we acknowledge that the primary sources we would expect to see are included. However, it is noted that the year listed for the NRHE is 2003 and 2005. We request clarification as to what this means. It should be noted that data holders should be contacted for the most up-to-date datasets within their archives.	The Applicant note that the references to 2003 and 2005 are as follows: BMAPA and English Heritage (2003) Marine Aggregate Dredging and the Historic Environment: Guidance Note; and British Marine Aggregate Producers Association and English Heritage, London and BMAPA and English Heritage (2005) Protocol for reporting finds of archaeological interest. British Marine Aggregate Producers Association and English Heritage, London, each listed in the references. The Applicant can confirm the that most up-to-date datasets were sought from data holders at the time of drafting the Environmental Statement.
5.10 We note from paragraph 9.6.2.2 that there is a data gap over the area of the cable route where the route has been amended since the PEIR. As such, we would wish to see further information clearly demonstrating the area that has yet to be covered, and the programme for conducting surveys within these area(s).	The Applicant would refer the Ex.A to the Applicant's response to paragraph 5.2 above and the Applicant's response to Ex.A question Q1.8.18 at Deadline I (REP1-122).
5.11 Table 9.5 'Summary of site-specific survey data' includes an adequate level of detail regarding the coverage, age and location of surveys conducted. However, this could be improved by being accompanied by a map demonstrating the coverage of each survey and the location of vibrocores and boreholes	The comment on this presentational issue is noted by the Applicant.
5.12 There appears to be an inconsistency within paragraph 9.7.6.5 in regards to how many recorded positions are within the regional study area (126 or 118), which must be corrected	The Applicant confirms that the correct number is 126.

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5.13 We note that paragraph 9.9.1.2 details the documents used to inform the impact assessment methodology for archaeological receptors. It should be noted that 'Conservation Principles' (English Heritage, 2008) has now been updated (Historic England, 2018).	The Applicant notes that a draft consultation document to update 'Conservation Principles' was issued in November 2017. The consultation closed on 2 February 2018 and the Applicant is unaware of any subsequent publication of a revised version prior to drafting the Environmental Statement.
5.14 Section 9.10 'Measures adopted as part of Hornsea Three' and Table 9.12 'Designed-in measures adopted as part of Hornsea Three' describes a number of designed-in measures proposed to reduce the potential for impacts on marine archaeology. In general, we are satisfied that these measures are appropriate.	The Applicant notes that HE is, in general, satisfied that designed-in measures proposed to reduce the potential for impacts on marine archaeology are appropriate. This agreement will be noted in the SoCG with Historic England.
5.15 Paragraph 9.10.2.2 states that 'If impacts cannot be avoided, measures to reduce, remedy or offset disturbance will be agreed.' It should be clarified in this point that agreement should be sought with the relevant archaeological curator, in most cases Historic England.	The Applicant notes the comment from HE. Further engagement with HE is actively being sought and it is intended that the details of this comment will be addressed through amendment of the Outline Offshore Written Scheme of Investigation (APP-115) and/ or dialogue prior to commencement.
5.16 Section 9.10.3 reads 'Perseveration by record', this needs amending to 'Preservation by record'.	The Applicant notes that this is a typographical error.
5.17 Paragraph 9.11.1.9 describes that the measures set out in Table 9.9 enable the best possible 'preservation by record' scenario for near-surface prehistoric land surfaces, through further survey and analysis of the palaeo environmental record. It is crucial therefore that this analysis is both detailed and complete.	The Applicant notes and agrees with the comment by HE.
5.18 Paragraph 9.11.1.15 concludes that the effect of sediment removal or disturbance of sediments on near-surface prehistoric land surfaces will be of minor adverse significance. Whilst we do not altogether disagree with this assessment, we wish to note that this conclusion is subject to the adequate discharge of the measures set out in Table 9.9.	The Applicant notes that, subject to the adequate discharge of the measures set out in Table 9.9 (Note: the Applicant believes that HE is referring to ES Table 9.12 of Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement; APP-069, which sets out designed-in measures adopted as part of Hornsea Three), HE appears to agree with the Applicants assessment that the effect of sediment removal or disturbance of sediments on near-surface prehistoric land surfaces will be of minor adverse significance. This agreement will be noted in the SoCG with Historic England.
5.19 Paragraphs 9.11.1.51, 9.11.2.21 and 9.11.3.20 states that 'other than those measures described in the Outline WSI … no future monitoring will respect to any of the above construction phase effects is warranted or recommended. We do not agreed with this statement and wish for further discussion and consideration be conducted.	Further engagement with HE is actively being sought and it is intended that this detailed comment will be addressed through amendment of the Outline Offshore Written Scheme of Investigation (APP-115) and dialogue prior to commencement.

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5.20 Section 9.11.2 'Operational and maintenance phase' describes the impact assessment for the operation and maintenance phase of the project. Based on the described predicted impacts and subject to the use of the measures in Table 9.9 we are content with this assessment. However, there must be a clear work package within the WSI for this phase of the project.	The Applicant notes that Volume 5, Annex 9.2: Outline Written Scheme of Investigation of the Environmental Statement (APP-115) is currently in draft form and that this will be finalised prior to commencement and approved by the MMO in consultation with the statutory historic body (as required by Schedule 11, Condition 13(2) (generation assets DML) and Schedule 12, Condition 14(2) (transmission assets DML) of the DCO Version 1, submitted for Deadline 1) . It is intended that there will be a clear work package within the final WSI to be approved by the MMO post consent for the operational phase of the wind farm. As noted above, the Applicant believes that HE is referring to ES Table 9.12 of Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement (APP-069), which sets out designed-in measures adopted as part of Hornsea Three.
6.1 In general, we are content with the information as presented within Annex 9.1. However, we wish to make the following comments in relation to the detail of the text.	The Applicant notes that HE is, in general, content with the information as presented within Volume 5, Annex 9.1: Marine Archaeology Technical Report of the Environmental Statement (APP-114). This agreement will be noted in the SoCG with Historic England.
6.2. In our response to the PEIR (dated 20th September 2017), we requested that paragraph 2.2.3.1 is amended to include Historic England Marine Geophysics Guidance (2013). We are disappointed to see that this has not been updated for the ES	The Applicant notes that the reference is included within the references for both Volume 5, Annex 9.2: Outline Written Scheme of Investigation of the Environmental Statement (APP-115) and Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement (APP-069).
6.3 Paragraph 2.3.1.1 states that the NRHE includes BMAPA protocol finds data, but this information as well as finds from ORPAD should be accessed independently of the NRHE due to the delay between reporting and uploading of finds information to this dataset.	The Applicant acknowledges the comments made by HE on this point.
6.4 Paragraph 2.3.1.2 states the secondary sources consulted, but it is noted that the Lost Frontiers project is not included here. This project must be consulted as it offers valuable information for this assessment.	The Applicant acknowledges the comments made by HE on this point, although this is not likely to have any material effect on the baseline characterisation or the impact assessment.
6.5 Section 2.3.2 'Field surveys' describes the geophysical and geotechnical surveys that were conducted and utilised in the archaeological assessment. Whilst we note that a figure is included that illustrates the locations of cores used in the assessment, it would have been useful for a figure to be included that likewise illustrated the location (and line spacing/coverage) of the geophysical data. Equally, paragraph 2.3.2.1 states the array area and cable corridor was covered by surveys with the exception of the cable route area, which has been altered between the submission of the PEIR documents and the submission of the Environmental Statement. We therefore require further details from the applicant in regards to the completion of an adequate baseline assessment for this area, in light of the data gap.	The Applicant would refer the Ex.A to the Applicant's response to paragraph 5.2 above and the Applicant's response to Ex.A question Q1.8.18 at Deadline I (REP1-122).

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6.6 We note from Section 2.3.2.8 that a series of methods, such as UXO and ROV searches will be considered to reduce the risk of impacts to anomalies that may not be visible within the geophysical survey. However, a strategy needs to be developed for how this will be employed and when.	The Applicant notes that Volume 5, Annex 9.2: Outline Written Scheme of Investigation of the Environmental Statement (APP-115) is currently in draft form. A strategy for methods such as UXO and ROV searches will be considered to reduce the risk of impacts to anomalies that may not be visible within the geophysical survey. Further engagement with Historic England is actively being sought and it is intended that this detailed comment will be addressed through amendment of the draft Outline Offshore WSI prior to commencement.
6.7 Paragraph 2.3.2.7 of the PEIR did not identify if any areas warranted additional survey work after the data was reassessed from existing surveys. We asked for this to be clarified and it has been stated within paragraph 2.3.2.9 of the ES that no additional surveys are required. We are not content that additional surveys are ruled out at this stage.	Paragraph 2.3.2.9 of Volume 5, Annex 9.1: Marine Archaeological Technical Report of the Environmental Statement (APP-114) states that "After a review of the magnetometer data collated for Hornsea Three, no areas were identified that warranted additional pre-consent survey work." HE has stated the following at paragraph 5.2 of their Relevant Representation (RR-078) "We acknowledge the detail of the assessment as presented within this chapter, and we are inclined to accept that the data available for the ES was adequate to inform a suitable baseline at this stage. However, we wish to see further detail regarding the delivery of a full baseline across the entire area to be impacted post-consent." The applicant notes the comments of HE and that no further pre-consent survey is warranted. This agreement will be noted in the SoCG with Historic England. In addition, the Applicant notes that a programme of post consent survey is proposed within the Outline Offshore WSI (APP-115).
6.8 In reference to the 7 boreholes that were collected from within the intertidal area as described in paragraph 2.3.2.20, the results of the interpretation of these cores must be incorporated with the ground model and the offshore results to provide a seamless interpretation from onshore to offshore.	The comment from HE is acknowledged and the Applicant is in the process of producing such a ground model. As this model is progressed, relevant outputs will be shared and discussed with HE.
6.9 There are discrepancies between the number of medium and low potential contacts given within paragraph 3.6.1.2 and Table 3.3, which must be corrected.	The comment from HE is acknowledged.
6.10 We request clarification as to why only some of the recorded wrecks with no seabed contact discussed in Section 3.6. Furthermore, those within the cable corridor are listed within UHKO numbers not UKHO numbers. This should be corrected	The Applicant notes that Volume 5, Annex 9.1: Marine Archaeological Technical Report of the Environmental Statement (APP-114) at paragraphs 3.6.2.13 and 3.6.3.19 provides an explanation for the apparent discrepancy, i.e. live records were discussed, whereas dead records are not discussed.
6.11 In relation to paragraphs 3.6.2.4-3.6.2.8 of the PEIR, we asked for clarification about how anomalies of low potential would be dealt with in terms of their mitigation. In paragraph 3.6.2.11 of the ES, it is stated that low potential anomalies are assumed to be low potential and therefore will not be discussed further. However, this does not take account of if the potential has not been picked up by the geophysical approaches used. Whilst, this has been amended in Annex 9.2 (Outline WSI), paragraph 2.3.2.8 appears to contradict this proposal as it is stated that UXO and ROV surveys are being considered in order to understand the risk to some anomalies.	Paragraph 9.6.2.4 of Volume 2, Chapter 9: Marine Archaeology of the Environmental Statement (APP-069) states that low potential anomalies are not discussed further within the Environmental Statement. The Applicant notes that Volume 5, Annex 9.2: Outline Written Scheme of Investigation of the Environmental Statement (APP-115), currently in draft form, provides a comprehensive mitigation strategy for all archaeological remains within Hornsea Three. Paragraph 8.1.1.1 of the Outline Offshore WSI considers the approach where an anomaly assigned a low potential is subject to further survey and then appears to have a greater archaeological potential. On this basis further investigation may be appropriate and suitable measures are included within the WSI to ensure this is carried out.

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7.1. We note the Deemed Marine Licences (DMLs) are set out in Schedules 11 (Generation Assets) and 12 (Transmission Assets) of the DCO. Our comments on the DCO and these DMLs are as follows.	Noted.
7.2. All references to the Outline WSI (singular) in the DCO must be amended to WSIs (plural) to reflect the use of an onshore and offshore WSI.	This is not required, as the DCO and DMLs only refer to one outline WSI, for offshore works. No onshore outline WSI is provided for.
7.3. The definition of 'commence' is presented within Part 1, Section 2(1) as "(a) in relation to works seawards of MHWS, the first carrying out of any licensed marine activities authorised by the deemed marine licences, save for operations consisting of offshore site preparation works, pre-construction monitoring surveys approved under the deemed marine licences, and (b) in respect of any other works comprised in the authorised project, the first carrying out of any material operation (as defined in section 155 of the 2008 Act) forming part of the authorised project other than site preparation works and the words "commencement" and "commenced" must be construed accordingly". We would disagree with this definition and request that the term commencement includes both pre-construction monitoring surveys and site preparation works, in order to ensure the production, agreement and implementation of the offshore WSI prior to such works. This would not only ensure adequate mitigation measures are developed for site preparation works, but ensure that the survey data are incorporated into the development of mitigation strategies. This should there be amended within this paragraph, and within the definitions listed in Schedule 11, Part 1, Section 1, paragraph 1 and Schedule 12, Part 1, Section 1, paragraph 1.	The Applicant would refer the ExA to Q1.13.5 of the Applicants response to ExA First Written Questions (REP1-122) regarding removal of "offshore site preparation works" from the definition of commence. The Applicant does not intend to remove preconstruction monitoring surveys from this definition, however, as the findings of these will inform the WSI which will be agreed pre-commencement of works.
7.4. The definition of "statutory historic body" as listed within Schedule 11, Part 1, Section 1, paragraph 1 and Schedule 12, Part 1, Section 1, paragraph 1is given as 'Historic England or its successor in function'. This should be amended to the 'Historic Building and Monuments Commission for England'.	The Applicant notes this, and will amend the relevant draft DCO to refer to the official name of the "statutory historic body," as the Historic Building and Monuments Commission for England.
7.5. Schedule 11, Part 1, Section 6 and Schedule 12, Part 1, Section 6 states that "Any offshore site preparation works undertaken shall not be considered to have commenced the licenced activities for the purposes of any condition of this licence that requires any discharge prior to such commencement". We are not content with this, due to the need to produce and agree a WSI prior to 'commencement' as described in our comment above.	The Applicant removed this paragraph from the draft DCO submitted for Deadline 1.
7.6. We note that Schedule 11, Part 2, Section 4 and Schedule 12, Part 2, Section 4 describes the operation and maintenance works that to be included under the DMLs. Whilst we have no objects to this approach, suitable provisions must be included within the WSI for O&M works.	The Applicant would refer the Ex.A to the Applicant's response to paragraph 5.20 above.

Interested Party's Written Representation	Applicant's Response
7.7. The provisions for the production and agreement of a Written Scheme of Investigation are set out in Section 11(2) of Part 2 of Schedules 11 and 12. Aside from the issue with commencement, as described above, we are largely content with the provisions set out. However, we request that consideration is given to the inclusion of archaeological mitigation within Schedules 11 and 12, Part 2, Section 15 in order to monitoring the effectiveness of the mitigation measures applied.	The Applicant would welcome further discussions with HE on this issue.
8.1. We note from paragraph 1.1.1.4 that the 'document will be monitoring and updated throughout the post-consent process… Prior to construction commencing, this Outline WSI will be finalised and incorporated into the Code of Construction Practice (CoCP) and submitted to the Marine Management Organisation (MMO) for approval.' The finalisation of the WSI prior to commencement is crucial, and as such must be clearly conditioned within the DMLs. However, this must also be completed prior to the commencement of pre- construction surveys to ensure that they are conducted as per current best practice advice.	The Applicant notes that Volume 5, Annex 9.2: Outline Written Scheme of Investigation of the Environmental Statement (APP-115) is currently in draft form. HE have confirmed in response to the Ex.A question 1.8.15 (REP1-112) that this document is sufficient for the purposes of examination and will be finalised, in consultation with HE post consent. A final written scheme of investigation (WSI) is required under Conditions 13(2) and 14(2) of Schedules 11 and 12 respectively of the draft DCO submitted for deadline 1. HE have provided a number of detailed comments on the Outline Offshore Written Scheme of Investigation. Further engagement with HE is actively being sought and it is intended that these detailed comments will be addressed through amendment and finalising of the draft Outline Offshore Written Scheme of Investigation prior to commencement. The Applicant notes the Outline Offshore Written Scheme of Investigation (APP-115) at Section 7 includes archaeological input into the planning and execution of pre- construction surveys to ensure that they are conducted as per current best practice advice. The Applicant has therefore not provided further responses to each of the detailed comments below.
8.2. There appear to be a number of inconsistencies within Section 2 'Hornsea Three' in regards to the number of turbines and cable length	
8.3. Paragraph 3.3.1.3 clarifies that AEZs will not be allocated to each of the 228 low potential anomalies unless they are at risk of damage/disturbance once the detailed design stage is complete. At this point, an AEZ will be employed, but it is not clear how this will be decided and what the criteria will be that will result in an AEZ being applied to a feature. This must be clarified.	
8.4. Significant magnetic anomalies are mentioned in paragraph 3.3.1.3 as being indicative of archaeological potential, but it should be noted that organic remains, such as wooden vessels/structures or peat deposits can be of high archaeological significance, but are generally not associated with a strong magnetic response.	
8.5. We would wish to see amendments made to Table 5.1 'Designed-in measures adopted as part of Hornsea Three' to specify the provision for the archaeological curator (in most cases Historic England) to have the opportunity to review and provide input for any planned geophysical, geotechnical and diver/ROV surveys. Furthermore, the provision of input into geotechnical surveys must be expanded to include input in relation to the retention and storage of cores collected, to enable appropriate analysis and interpretation to take place	

Interested Party's Written Representation	Applicant's Response
8.6. Additionally, Table 5.1 of the PEIR states that 'operational awareness' would be maintained for areas of low potential, with an agreed reporting protocol in place. We felt that this contradicted the statement in paragraph 3.3.1.3 and therefore needed to be clarified, but this has not been changed for the ES.	
8.7. Figure 6.2 should be corrected to identify that key Historic England consultees are the projects designated Marine Planning Archaeologist and Science Advisor. Furthermore, the reference to English Heritage within paragraph 6.3.1.1 should be replaced with Historic England.	
8.8. We wish to see provision added to Section 6.4 'Responsibilities', Subsection 6.4.1 'Hornsea Three Project Manager' to ensure the delivery of the requirements of this WSI within agreed timescales.	
8.9. Further detail is required within Subsection 6.4.3 'Archaeological Contractors' to include their responsibility to follow the provisions of the WSI and any relevant method statements, as advised by the retained archaeologist.	
8.10. Paragraph 7.1.1.1 contains a single sentence repeated three times. This must be corrected.	
8.11. We welcome the inclusion within paragraph 7.2.1.1 of detail regarding the early consultation of the retained archaeologist in regards to the planning of future geophysical and geotechnical surveys. However, we would wish to see further detail included within this paragraph regarding the consultation of the archaeological curator also.	
8.12. Additionally, it should not be ruled out for opportunities to be sought for the collection of data purely for archaeological purposes.	
8.13. Figure 7.1 'Anticipated timeframes for planned offshore geophysical and geotechnical survey works for Hornsea Three' provides insufficient information to be a useful aid and needs to be amended.	
8.14. In relation to Table 7.1 'Overview of pre-application and pre-development offshore geophysical and geotechnical surveys for Hornsea Three', we requested at the PEIR that an indication of percentage coverage of the geophysical techniques used on the site be included in the ES. This has been included for the future surveys that have been proposed, but not for the existing surveys that have been completed.	
8.15. In addition to Table 7.1 it would be useful to include a figure to demonstrate the different coverage of each survey (geographically), inclusive of line spacing. Another useful detail to include within Table 7.1 would be the timing of surveys to cover the working areas.	

Interested Party's Written Representation	Applicant's Response
8.16. The submission to the Archaeological Curator of a Method Statement as detailed in paragraph 7.2.1.5 must be at least 1 month prior to the planned commencement of the survey, in order to allow for sufficient time for the review of the Method Statement and any amendments to be completed and agreed.	
8.17. The scope for further survey work as detailed within Subsection 7.3.3 'Further surveys that will require archaeological work' should include provision for the inspection of a representative sample of low potential anomalies for ground- truthing purposes.	
8.18. In relation to Section 7.4, we stated at the PEIR that full coverage or greater should be achieved for the side scan sonar and multibeam surveys, but no text has been included in this section that addresses this. Additionally, the first line of paragraph 7.4.1.3 should be amended as follows: "A sidescan sonar survey will be carried out at frequency, range and gain settings capable of resolving as a minimum objects that are 0.5m and above throughout the survey area."	
8.19. The submission of a report to the Archaeological Curator for review, as detailed in paragraph 7.4.2.3, should be completed within 3 months of the completion of the survey. The text should be amended to reflect this	
8.20. Section 7.5 'Geotechnical surveys' needs to be amended to include clear provisions for the development of a collection, retention and storage strategy for cores to allow for analysis to take place. In particular, we provided in our advice to the PEIR the need to collect the cores using light-proof sleeves, and that the cores needed to be to stored and split under safe-light (dark) laboratory conditions. However, no text has been included within the ES about the sampling and storage needs of OSL samples.	
8.21. In relation to the Stage 1 assessment, as described in Subsection 7.5.2, it is recommended that a geoarchaeologist is present during the initial splitting and recording of cores.	
8.22. Additional detail should be included within paragraph 7.5.5.1 in relation to the potential use of OSL dating in additional to radiocarbon dating, in order to be consistent with statements given in paragraph 7.2.1.3.	
8.23. Paragraphs 7.5.6.2 and 8.1.1.7 should include a clear timescale for the delivery of the report to the Archaeological Curator. It is recommended that all reports should be submitted within 3 months of the completion of surveys.	
8.24. Further detail is required within Section 8 'Pre-construction ROV and/or Diver Surveys' to consider the examination of a sample of lower potential anomalies with no AEZ, to ground-truth and test the interpretation of the geophysical data.	

Interested Party's Written Representation	Applicant's Response
8.25. Within paragraph 8.1.1.2 the use of the term 'level' and a numerical value to describe the staged approach to survey work is confusing with the levels of recording that are set out in Appendix D. It is suggested that an alternative term is used in this paragraph	
8.26. Within paragraph 8.1.1.3 provision should also be given to having the method statement reviewed by the Archaeological curator, in addition to the Retained Archaeologist. Furthermore, the Retained Archaeologist should be able to input the provisions of additional contacts for review for solely archaeological purposes.	
8.27. Section 9 'SeaZone and UKHO Records Classified as 'Dead'' provides insufficient detail, and the signposted Table 5.1 provides little more. Further information should be provided within this section.	
8.28. Further detail is required within paragraph 10.1.1.4 as to how the details regarding AEZs will be distributed to all relevant staff and contractors, and any measures proposed to ensure their understanding of the principles behind AEZS and their avoidance during construction, O&M and decommissioning activities.	
8.29. The last sentence of paragraph 10.2.1.1 should be removed. Additionally, there is an inconsistency between this paragraph and paragraph 10.5.1.1 in regards to the number of anomalies that warrant protection via AEZs. This must be corrected.	
8.30. The submission of the report as detailed within paragraph 10.5.1.3 must include a timeframe for delivery, to be agreed with the Archaeological Curator.	
8.31. Further detail is required in Section 13 'Pre-construction Cable Route Clearance' regarding the potential need for the production of a Watching Brief Method Statement, and detail regarding the archaeologists authority to stop works to allow for adequate inspection and recording of any finds or features as necessary. They should also be able to fully halt the construction in the event of a significant find.	
8.32. Further detail is required in Section 14 'Mitigation of Unavoidable Direct Impacts on Known Sites' regarding the production of a method statement detailing measures to be applied, including a time frame for the its production and agreement with the Archaeological Curator.	
8.33. It should be noted that the Protocol for Archaeological Discoveries as detailed in Section 15, should be implemented over the life of the project including the operational and maintenance, and decommissioning phases. Paragraph 15.1.1 should be amended to reflect this	

Interested Party's Written Representation	Applicant's Response
8.34. Further detail should also be provided within Section 15, regarding the training of project and vessel staff, and the timescales for the submission of reports throughout the construction phase.	
8.35. The archiving of reports with the NRHE and submission of an OASIS form, as detailed in paragraph 15.3.1.5, should be completed within a timeframe agreed with the Archaeological Curator. It is recommended that this should be within 3 weeks of the completion of the report.	
8.36. Further detail is required in paragraph 16.1.1.2 in relation to the definition of 'the completion of works'.	
8.37. Further detail is required across Section 16 'Reporting' in relation to how the reporting and publication process will occur, especially in regards to the timeframes for the delivery of reports, submission of OASIS forms and deposition of archives.	
8.38. We no longer wish to see the WSI revised over the lifetime of the project. As such, amendments to Section 17 'Arrangements for Monitoring and Reviewing the Written Scheme of Investigation' must detail the production of a final WSI at least 6 months prior to the commencement of any works, including surveys and site preparation. Additional investigations or amendments will subsequently be included within specific Method Statements. Such Method Statements must be submitted to the Archaeological Curator for approval at least 1 month prior to the commencement of any works they describe.	
8.39. Within Section A.4 of Appendix A 'Protocol For Archaeological Discoveries' further detail is required to set out the provisions for the stoppage of works should the discovery of features of archaeological significance occur. Additionally, it should be noted that in as well as being stored in seawater, finds should be kept in a cool dark place and that if available fresh water is preferable to seawater.	
8.40. A clear timeframe for the deposition of the Revised Summary Report should be included within paragraph A.7.7.1.	

Interested Party's Written Representation	Applicant's Response
9.1. We note from Table 1.2 'Hornsea Project Three O&M Activities – generator assets' and Table 1.3 'Hornsea Project Three O&M Activities – transmission assets' within Annex 3.6 'Offshore Operation and Maintenance Licensable Activities' in Volume 4 that the raising of a jack-up vessel and the moving of scour protection are not included as licensable activities. We disagree with this assessment, as request that they are included within consideration as licensable activities, due to their potential to impact the seabed, and hence archaeological receptors.	The Applicant notes that the MMO does not consider the activity of jacking up a vessel, in and of itself, to be licensable. However, any operation or maintenance activity requiring the use of a jack up vessel is licensable, including for example, major component replacement on WTGs, replacement of ladders, and export or array cable repairs. Thus, potential impacts to the seabed (including those on any potential archaeological receptors) associated with the act of jacking up a vessel are managed under a licence. With the respect to the temporary movement of scour material, the Applicant is referring to those instances when material is temporarily pushed aside from turbine and offshore substation foundations to provide access for maintenance. Therefore, in this instance (temporary movement of scour material) the locations in question would have undergone prior consideration of any important archaeological features and been subject to any necessary micrositing. Accordingly, there would not be scope to adversely impact archaeological receptors. The pushing aside of material is contrary to the picking up and depositing of scour material elsewhere, which the MMO considers a licensable activity. The handling of scour material will be detailed in the Scour Management Plan which will require approval from the MMO and any necessary licensing activities will be made aware to the Applicant as part of that plan's approval process.

Highways England (REP1-108)

Summary

2.55 Highways England have submitted two written representations at Deadline 1 (REP1-108) providing a covering letter and full written representation which provides responses to examiners questions.

Response to Highways England

Interested Party's Written Representation	Applicant's Response
Covering Letter: I refer to your letter of 9 October regarding the above proposal and as an interested party, your invitation to submit written representations to the ExA's Written Questions set out in Annex A to your letter. You have requested that any representations should meet Deadline 1 (17 November) as set out in the Examination Timetable. Specifically, you have asked for responses to three questions; responses to which are set in the attached note. These responses should be read in conjunction with the Statement of Common Ground between Highways England and Orsted Hornsea Project Three (UK) Ltd which has been submitted to you by the applicant.	Noted.

Interested Party's Written Representation	Applicant's Response
Written Statement: Response to ExA first written questions: - WQ 1.11.1 - WQ 1.14.20 - WQ 1.15.5	The Applicant would refer to the Applicant's Comments to Highways England Response to the ExAs Written Questions.

Eastern Inshore Fisheries and Conservation Authority (EIFCA) (REP1-118 and REP1-124)

Summary

2.56 The key points raised by the Eastern IFCA in their Written Representation (REP1-118) and their Summary (REP1-124) relate to the following:

- Effects of cable installation on subtidal mixed sediments, a sub-feature of the Annex I Subtidal Sandbanks feature of The Wash and North Norfolk Coast SAC;
- Effects of cable installation on local potting;
- Uncertainty with regard to the cumulative effects of electromagnetic fields (EMF) on marine fauna.

2.57 The Applicant has discussed these points with the Eastern IFCA and the draft SoCG shows progress made in these discussions prior to Deadline I. This includes agreement between the Applicant and the Eastern IFCA that impacts on the local potting fleet will be appropriately managed, via the Fisheries Coexistence and Liaison Plan. The other two points are currently "under discussion".

2.58 The Applicant has provided responses to the detailed points raised in the Eastern IFCA's Written Representation below.

Response to Eastern Inshore Fisheries and Conservation Authority (EIFCA)

Interested Party's Written Representation	Applicant's Response
Summary of Written Representation - Eastern IFCA The Applicant has presented further habitat evidence from additional survey data for the near shore cable area. Results indicate approximately 50% of the cable route in the WNNC SAC lies across mixed sediments. Orsted have recognised that subtidal mixed sediments are part of the Annex I Subtidal Sandbanks feature of the SAC, which can include more sensitive habitats than just "subtidal sand", and have taken a precautionary position in their impact assessment. Eastern IFCA remains concerned that cable burial/maintenance activities could impact sensitive mixed sediment habitats in areas closed to towed demersal fishing, which eliminates such impacts. Following discussions with the Applicant we accept that impacts on potting will be minimised through appropriate dialogue with fishermen, including the creation of a "commercial fisheries working group" type group if required, and appropriate disturbance payments where necessary. Eastern IFCA accept there is unlikely to be a significant impact on trawling (in the inshore area) because of the low level of activity in the area and the low likelihood of needing cable protection. Whilst the Applicant has assessed the potential impacts of electro-magnetic fields, Eastern IFCA maintain that not enough is known about electro-magnetic field impacts. We do not consider this can be addressed by a single developer; instead there is a responsibility for the marine cable industry to investigate and conduct research to reduce uncertainty.	
Full Written Representation:	

Interested Party's Written Representation	Applicant's Response
1.1 Role of the Eastern Inshore Fisheries and Conservation Authority (Eastern IFCA) The role of the Eastern IFCA is "to lead, champion and manage a sustainable marine environment and inshore fisheries" in our district, which extends from the Humber to Harwich, and six nautical miles out to sea. The Hornsea Project Three Cable Corridor lies partly within the Eastern IFCA district. Therefore, it is considered appropriate for Eastern IFCA to provide comment on the proposal. Our interest focuses primarily on the inshore section of the cable route corridor. *1.2 Use of the relevant marine plan* In all consultation responses, the Authority assesses applications (and pre-applications) according to the Eastern IFCA vision and adherence of those same applications with policies detailed in the relevant marine plan, as directed under section 58(1) of the Marine and Coastal Access Act 2009. The plans relevant to the Authority's district are the East Inshore and East Offshore Marine Plans. We consider whether proposed developments will have a positive, negative or negligible effect on plan policies related to the IFCA vision to "manage a sustainable marine environment and inshore fisheries". These considerations also enable the IFCA to provide advice in relation to the need to protect the environment, the need to protect human health and the need to prevent interference with other legitimate users of the sea.	The Applicant notes the use of the East Inshore and East Offshore Marine Plan policies to inform the Eastern IFCA's Written Representation.
2. East Marine Plan policy considerations The Authority has reviewed the application and associated documents. We acknowledge that Ørsted Hornsea Project Three (UK) have requested a written representation for their application for an Order Granting Development Consent for the Hornsea Project Three Offshore Wind Farm. The authority considers the following policies to be relevant to the application:	Noted

Interested Party's Written Representation	Applicant's Response
Policy BIO1 and MPA1 Any activity that disturbs the seabed has the potential to have short and/or long-term negative impacts on habitats and biodiversity. The extent of these impacts can be highly dependent on sea bed habitats and communities and the nature of activities. The Hornsea Three offshore export cable corridor extends across the Eastern IFCA district and falls within two marine protected areas; Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ) and The Wash and North Norfolk Coast (WNNC) European Marine Site (EMS). The EMS includes a Special Area of Conservation (SAC) designation for The Wash & North Norfolk Coast, and a Special Protection Area (SPA) designation for the North Norfolk Coast. The Cromer Shoal Chalk Beds MCZ protects a range of habitats including subtidal chalk features, which provide important habitat and nursery areas for a variety of marine species, including important commercial fish and shell fish species. To meet the conservation objectives of this designation, the general management approach for protected features is to maintain at favourable condition (Defra, 2016). A small proportion of the cable corridor footprint lies within the MCZ, close to the western edge of the subtidal chalk feature but avoids the feature as recommended in our previous responses. However, the rest of the cable corridor runs through The Wash and North Norfolk Coast SAC across subtidal mixed, coarse and sand and muddy sand sediments (Figure 1). For coarse and sand and muddy sand sediments, Eastern IFCA agree in general that the direct effects of cable installation on these habitats and their associated benthic communities will be localised and of a temporary nature, however for mixed sediments, effects can be increased and longer term.	The Applicant welcomes the Eastern IFCA acknowledgement that the revised offshore cable corridor avoids direct impacts on subtidal chalk features of the Cromer Shoal Chalk Beds MCZ. The Applicant notes that subtidal mixed sediments (as well as subtidal sand and subtidal coarse sediments) are all sub-features of the Annex I habitat "Sandbanks which are slightly covered by seawater at all time". This is reflected in the draft SoCG with, and acknowledged by, the Eastern IFCA. The Applicant acknowledges that subtidal mixed sediments are sensitive, however the majority of impacts will be limited to seabed preparation and cable installation, with repeat disturbance only affecting a small proportion of the habitat affected within the WNNC SAC. The impact of cable installation, operation and maintenance and decommissioning on these habitats was fully considered within Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) and the Report to Inform Appropriate Assessment (APP-051). The lifetime effects of cable installation, operation and maintenance and decommissioning on Annex I habitats (including sub-features) of The Wash and North Norfolk Coast SAC have also been summarised in the Applicant's Deadline I response to Ex.A Question 1.2.103.

Interested Party's Written Representation	Applicant's Response
We would like to emphasise that subtidal mixed sediment (EUNIS A5.4) is a sub-feature of the Annex 1 habitat feature "Sandbanks which are slightly covered by seawater all the time" (see online conservation advice1) and is a designated feature of the WNNC SAC. Paragraph 2.3 of the Clarification Note: Baseline and impacts of cable installation states that "mixed sediments present in this area may qualify as Annex I habitat (i.e. Annex I stony reef)" indicating that mixed sediments that do not qualify as stony reef have not been considered as Annex 1 habitat in this assessment. We suggest that advice is sought from the statutory nature conservation advisor, Natural England, in relation to the conservation status of the subtidal mixed sediment habitat within the SAC. The footprint of the cable corridor coincides with Eastern IFCA's byelaw 12 and 15 closure area which prohibits use of bottom towed fishing gears from 0-3 nautical miles from Blakeney to Mundesley (EIFCA, 2016). These byelaws were implemented in 1980 and 2008, respectively, to protect valuable potting grounds and the habitats supporting them. Had this area not already been closed to trawling and dredging, it would have been included in a new suite of closures to towed demersal fishing activity that Eastern IFCA is currently proposing to meet the conservation objectives of the WNNC SAC in relation to fishing and to protect mixed sediments which can be very sensitive to damage through abrasion or penetration. EIFCA acknowledge that the results from the drop-down video surveys carried out by the Applicant in summer 2018 and detailed in the Clarification Note: Baseline and impacts of cable installation, provide further evidence to support the classification of biotopes presented in Volume 2, Chapter 2: Benthic Ecology of the Environment Statement. Results indicate that approximately 50% of the cable route that runs across the WNNC SAC lies within mixed sediments. Previously, we raised concerns regarding the increased footprint of the cable re-route. We understand the reasons why the proposed cable route was chosen over other alternatives and accept that despite the increase in the footprint of the cable route the impacts on Cromer Shoal Chalk Beds MCZ has been reduced. However, we would like to highlight again that there should be recognition and assessment of the impacts of the export cables on Annex 1 habitat sub-features (subtidal mixed sediments in particular) within the WNNC SAC	

Interested Party's Written Representation	Applicant's Response
Policy EC3 and ECO1 Recent experience of Race Bank cable installation in The Wash and North Norfolk Coast Special Area of Conservation (SAC) have shown operation and maintenance requirements have increased considerably beyond initial predictions, with subsequent increases in seabed disturbance. This raises the question of how realistic the predictions are for Hornsea Three cable installation, operation and maintenance activities, and increases the potential for cumulative impacts and increased in-combination effects with other activities. EIFCA acknowledge the assessment of cumulative effects made by the applicant. However, we would like to highlight that there are still large knowledge gaps regarding the impacts of electromagnetic fields on fish and shellfish receptors. This includes the commercially important edible crab species where recent evidence has highlighted potential impacts on behaviour and physiology (Scott *et al*., 2018).	The maximum design scenario assessed within offshore chapters of the Environmental Statement and the Report to Inform Appropriate Assessment (APP-051) considers all the potential impacts associated with construction and operation and maintenance activities, using lessons learned from the industry through the development of Round 1 and Round 2. This is reflected in the inclusion of activities such as, sandwave clearance prior to cable installation and cable remedial burial or repair during the operation and maintenance phase, which were typically not included in Round 2 Environmental Statements (e.g. Race Bank offshore wind farm). The Applicant acknowledges the Eastern IFCA's position with respect to uncertainties around effects of EMF on fish and shellfish, as reflected in the draft SoCG with the Eastern IFCA, however the Applicant would note that evidence available at the time of drafting the Environmental Statement indicated that any effects, should these occur, would only affect an area of limited extent in close proximity to the cables. It should be noted that the levels of EMF used in the study cited by the Eastern IFCA (i.e. Scott et al., 2018) were considerably higher than those typically associated with the buried electrical cables.

Interested Party's Written Representation	Applicant's Response
Policy GOV3 and FISH 1 Within the EIFCA district the cable corridor and surrounding areas lie within extremely important fishing grounds, particularly for the East Anglian potting industry. In this area the use of towed gears is prohibited within 3nm (Byelaws 12 and 15) and is thus dominated by potting activity, almost exclusively targeting crab and lobster. Whelks are also fished, but further offshore between 3 and 6nm, and are mainly targeted in the winter, as opposed to crabs which are mainly targeted in the summer. The crab fishery represents a substantial contribution to both national and local economies (Welby, 2015). It is estimated that there are around 42 vessels operating out of ports on the North Norfolk coast between Sea Palling and Wells. Generally, fishers deploy between 200 and 1300 pots per vessel at any one time. Most fishers operate within the 3nm limit, as the fishery is generally exploited by single handed, small and open vessels. The potting fishery represents a substantial contribution to both national and local economies, including the tourism section, and any detriment experienced by the fishing community would have wider repercussions on the local economy/community.	
Following discussions with some of the local potting fleet, it is apparent that the proposed cable route lies within an important area for the fishery. The heaviest impacts are expected to be on those that fish out of Cley-next-the-Sea and Weybourne. Concerns were also raised regarding the displacement effects of another cable route on the fishery. Fishermen stated that cable works for Dudgeon and Race Bank windfarm have displaced effort into the proposed Hornsea Three cable route area increasing the concentration of pots, and that further displacement out of this area will have increased impacts on adjacent grounds. This has resulted in increased competition for fishing ground between fishers and has the potential to have increased impacts on commercially important stock and habitats for local species. It was also stated that following cable works the Dudgeon cable route is now barren, increasing concerns over the recoverability of habitats following cable installation and maintenance works. EIFCA has no data to verify this, but we value local stakeholder knowledge and suggest that a robust monitoring programme be instigated to ascertain the impacts of the Hornsea 3 project on crab and lobster catch per unit effort.	As set out in the draft SoCG with the Eastern IFCA, the Applicant and the Eastern IFCA agree that engagement with the fisheries industry through an agreed Fisheries Coexistence and Liaison Plan will ensure effects on local commercial fishery interests, including the local potting fleet in particular, are minimised. The Applicant refers the Ex.A to the Eastern IFCA's response to question Q1.15.14 which requested no further amendments to the Fisheries Coexistence and Liaison Plan. The Applicant acknowledges the Eastern IFCA's comments on monitoring. The Applicant has proposed a robust monitoring programme for the seabed, including effects on marine processes and benthic habitats to monitor the rate of recovery of seabed habitats, including those used by commercially important shellfish species (e.g. lobster and brown crab).
Other static gear fisheries occur in the area, but on a much smaller scale. These include gill and trammel netting for bass, skate and cod and drift netting for herring (mainly in winter) and cod. A very low level of shrimp trawling occurs outside of the 3nm boundary on softer ground, but this is generally impractical due to the concentration of pots in the area. Discussions are required with the potting industry to ascertain the level of activity within the cable corridor and the proportion of the fleet that will be affected to ensure appropriate mitigation is put in place. The inshore crab and lobster fishery generally runs from April to September so timing the construction and maintenance works, where possible, outside these months could potentially reduce impacts on the industry.	

Interested Party's Written Representation	Applicant's Response
Policy CAB 1 The East Marine Plans Policy states that 'preference should be given to proposals for cable installation where the method of installation is burial'. The 'Cable Statement' (PINS Document Reference: A7.2, Section 5.1.4) states that the cable will typically be buried between 1-2m depth and where the cable cannot be buried cables will be secured using armoring, such as rock, mattress or proprietary separation layer, to maintain integrity. This is not in keeping with the East Marine Plans policy and efforts should be made to minimise the length of cable that will require armoring. Additionally, it should be highlighted that previous requests to use armoring in The Wash and North Norfolk Coast SAC have not been consented by Natural England and the MMO, because of impacts on existing soft-sediment habitats. Due to the uncertainty of habitat in this area, there are concerns that if large areas of rock or other unsuitable habitat exist, it will not be possible to bury a substantial proportion of the cable, and rock armouring will be used instead, resulting in significant changes to habitat within areas currently closed to towed fishing gears. Armouring cable instead of cable burial can have increased adverse effects on the environment but also on fishing activity. For example, the presence of the export cable if not buried can result in snagging of fishing gears, a significant safety implication particularly for the small vessels operating in this area, and thus could permanently exclude fishing activities from the area. EIFCA acknowledge the estimation of up to 10% of cables within The Wash and North Norfolk Coast SAC could require protection. Whilst further assessment of sediment type along the cable route has been carried out using video assessment and identifies predominantly mobile sediments along the cable route (Clarification Note: Baseline and impacts of cable installation), Eastern IFCA's understanding of the habitat in this area is that mobile sediments could overlay subtidal chalk. Depending on the depth of overlying sediments, cables might have to be buried into the chalk or protected using rock armouring. Video assessment of the seabed does not allow an assessment of underlying habitat below the top layer.	The Applicant notes and accepts that cable burial is the preferred method for installing cables, as burial beneath sediments provides the best protection of the cable assets, as well as minimising the impacts on the environment and other marine users. However, cable protection has been included within the project description as cable burial is not always possible and due to the need for cables to be protected from anchor strike and/or snagging with commercial fishing gear (as noted by the Eastern IFCA). The Applicant acknowledges that the video evidence presented at Appendix 5 to the Applicant's response to Deadline I does not provide information on underlying geology beneath surface sediments. The Applicant would direct the Ex.A to the Applicant's Deadline I response to Ex.A question Q1.2.4, which provides examples of equipment used to install cables within areas of sub-cropping rock.

Interested Party's Written Representation	Applicant's Response
Policy FISH 2 Many coastal habitats, particularly biogenic habitats, provide important spawning and nursery areas for a variety of marine species. Therefore, any disturbance to these habitats has the potential to have negative effects of these populations. The inshore sections of the offshore cable corridor are known to provide spawning and nursery areas for important pelagic and demersal fish species, such as herring and whiting, and elasmobranch species, such as thornback ray (Ellis *et al*., 2013).	
Eastern IFCA consider that effects of offshore wind farm construction on fish and shellfish spawning and nursery grounds should be considered at a regional scale. Although the best available information (Ellis *et al* 2013) shows extensive spawning grounds for many species, Eastern IFCA is concerned about the scale of offshore activities (particularly aggregate extraction and offshore wind farm construction) in the southern North Sea because of cumulative effects on seabed habitats. Whilst we appreciate the difficulty in studying potential wide-scale impacts, we consider the issue does warrant further consideration with regards to the value of the array area and offshore parts of the export cable route to fish and shellfish spawning/nursery grounds. This is increasingly important given the growing number of offshore renewable energy developments and the existing number of aggregate extraction areas in the southern North Sea.	The Applicant acknowledges the comments from the Eastern IFCA and as outlined in the draft SoCG with the Eastern IFCA, the Applicant has presented a robust cumulative effects assessment within Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement (APP-063).
3. General comments Eastern IFCA is continually seeking to improve how we respond to consultations, both in terms of efficiency and content. Therefore, if any of the points raised in this response are reflected in the outcome we would appreciate being informed.	Noted

Defence Infrastructure Organisation (REP1-123)

Summary

2.59 As the Defence Infrastructure Organisation (DIO) written representation at Deadline 1 (REP1-123) focusses solely on responses to the ExA's First Written Questions, the Applicant has provided responses to the points raised by DIO in the Applicant's comments on responses to the ExA's Written Questions submitted by Interested Parties at Deadline 1.

Response to Defence Infrastructure Organisation

Interested Party's Written Representation	Applicant's Response
Further to your letter of 9 October 2018, I write to provide the response of the Ministry of Defence (MOD) to the written question addressed to it by the Examining Authority and to confirm the department's safeguarding position in relation to this application.	

Interested Party's Written Representation	Applicant's Response
Q1.13.64 In reply, I can advise that the MOD considers that the current version of condition 61 (Aids to navigation) does not sufficiently address the department's concern relating to the provision of aviation warning lighting to maintain the safety of military aircraft engaged in low flying training activities. It is noted that paragraph 6-(1) of the drafted condition does define a requirement for the undertaker to maintain lighting and other aids to navigation on the seaward element of the authorised project for the prevention of danger to navigation.	The Applicant would refer the ExA to Q.1.13.64 in the Applicant's comments on responses to the ExA's Written Questions submitted by Interested Parties at Deadline 1.

National Federation of Fishermen Organisation (NFFO) (REP1-182)

Summary

2.60 The Applicant has been in discussion with the NFFO and VisNed prior to Deadline I and, as acknowledged by the NFFO in their Written Representation, good progress has been made on the issues raised in the NFFO's Relevant Representation.

2.61 Section 4 of the SoCG with the NFFO and VisNed outlines the status of discussions and in particular those matters which are "under discussion" and those which are "not agreed".

2.62 In response to the NFFO's key point in their Written Representation, the Applicant acknowledges the NFFO's position with respect to communicating cable exposures to the fishing industry and this being secured within the DCO and DMLs. The Applicant notes the importance of this issue with respect to commercial fishing operations and as noted by the NFFO, there is a commitment within the outline Fisheries Coexistence and Liaison Plan (FCLP; updated version provided at Appendix 36 to the Applicant's response to Deadline I (REP1-154) to communicate safety hazards (including cable exposures and other hazards, e.g. dropped objects) to the fisheries industry, via the Fisheries Liaison Officer. As stipulated in Schedule 11, Part 2, Condition 13(4) and Schedule 12, Part 2, Condition 14(4) of the draft DCO, a FCLP must be submitted and approved by the MMO and that this plan is required to be in accordance with the outline FCLP. The Applicant therefore considers that there is adequate commitment to communication of hazards in the draft DCO/DMLs.

2.63 The Applicant notes that the Annex to the NFFO Written Representation has highlighted the matters still under discussion as outlined in the SoCG (REP1-220). The Applicant will continue to work with the NFFO to resolve these matters through the SoCG.

Response to National Federation of Fishermen Organisation (NFFO)

Interested Party's Written Representation	Applicant's Response
We noted in our relevant representation that we would look to address outstanding concerns relating to this application towards promoting fisheries coexistence and addressing residual impacts to the commercial fisheries sector. Significant progress has been made as outlined in the Statement	The Applicant welcomes the NFFO's comments with regard to the progress made in discussions prior to Deadline I. The Applicant acknowledges the NFFO's position with respect to the communicating cable exposures to the fishing industry and this being secured within the DCO and DMLs.

Interested Party's Written Representation	Applicant's Response
of Common Ground that we understand Orsted has submitted in line with deadline 1. Our outstanding residual issues are summarised at the end of the SoCG and appended to this Written Representation. We would like to draw particular attention to our request that the communication of cable exposures to the fishing industry (including via the Kingfisher information service) is secured within the DCO/DML. The potential for cable exposures represents one of the most significant marine hazards to commercial fishing operations that remains insufficiently mitigated at this point of the application process. Orsted has stated that exposures would be communicated to the fishing industry and referenced in an amended Fisheries Liaison and Coexistence plan (FCLP), which itself is proposed to be secured as a requirement via the DCO/DML. We, however, consider that a requirement to communicate the detection of exposed cables to the regulator and to the fishing industry is specifically stipulated and secured within the DCO/DML for the following reasons: The FCLP may be amended post consent with the commitment no longer being stipulated. • It would be more appropriately in line, in our view, with the safety critical nature of such marine hazards so that safety risk to the fishing industry and other mariners is minimised and effective regulatory oversight is established. • We wish to see a standard approach adopted for the communication of cable exposures established across the marine renewable energy industry in order to provide assurance to our industry and establish what should in time become a familiar mechanism for promulgating such information. This would likely be facilitated by the introduction of a specific clause for this project that may also be subsequently adopted under future marine renewable energy applications. This would be similar to the common practice now established with offshore renewable energy applications with respect to the reporting of dropped objects.	The Applicant notes the importance of this issue with respect to commercial fishing operations and as noted by the NFFO, there is a commitment within the outline Fisheries Coexistence and Liaison Plan (FCLP; updated version provided at Appendix 36 to the Applicant's response to Deadline I) to communicate safety hazards (including cable exposures and other hazards, e.g. dropped objects) to the fisheries industry, via the Fisheries Liaison Officer. As stipulated in Schedule 11, Part 2, Condition 13(4) and Schedule 12, Part 2, Condition 14(4) of the draft DCO, a FCLP must be submitted and approved by the MMO and that this plan is required to be in accordance with the outline FCLP. The Applicant therefore considers that there is adequate commitment to communication of hazards in the draft DCO/DMLs.

Interested Party's Written Representation	Applicant's Response
Annex: SoCG Summary (Reproduced) This SoCG has been developed with the NFFO and VisNed to capture those matters agreed, under discussion and not agreed in relation to commercial fisheries. **Matters under discussion** **Impact assessment assumptions and conclusions** The parties agree that fishing will resume, to some degree, within the operational Hornsea Three array area and that the degree to which fishing will resume will in part depend upon the successful implementation of measures outlined in the FCLP. The NFFO and VisNed note that it is highly likely that fishing will not resume at levels occurring prior to the development during the operation and maintenance phase of Hornsea Three. This is particularly the case for seine netting and fly shooting, which the NFFO and VisNed note are unlikely to be able to operate within the operational Hornsea Three array area. The Applicant's position is that the significance of the impact on those fleets which utilise fly shooting is minor adverse. Fly shooting vessels typically deploy beam trawl gear seasonally and would have opportunity to continue to fish within the Hornsea Three array area, should they change gear to beam trawl. This matter is currently under discussion between the parties. **Fisheries Co-existence and Liaison Plan** The parties agree that the FCLP is an important document that will ensure that the Hornsea Three and the fishing industry can co-exist, through open and continuous communication between the Applicant and the fishing industry. The measures to achieve this, as outlined in the outline FCLP are appropriate and are agreed. Notwithstanding the agreement on the measures within the FCLP, the NFFO maintain residual concerns in relation to the following, which the Applicant is continuing to discuss with the NFFO: • Securing within the DCO, protocols for detecting, communicating and remediating exposed cables during the lifetime of the project. NFFO and VisNed consider that a standard approach to reporting on detected exposed cables should be adopted across the marine renewable industry, secured and enforced under the DCO to address the potential risk to fishing activities and asset integrity. • The need for the 1,000 m advisory safe passing distance. NFFO and VisNed consider this is out of line with our observed typical practice where 500m safety zones or advisories are considered a sufficient maximum.	This part of the NFFO Written Representation reproduces the summary section of the Hornsea Project Three Statement of Common Ground with the NFFO and VisNed submitted at Deadline 1 (REP1-220). The Applicant welcomes and plans to have further engagement with the NFFO and VisNed to resolve matters which remain under discussion or not agreed.

Interested Party's Written Representation	Applicant's Response
Matters not agreed **Impact assessment methodology, including CEA** The Applicant has undertaken an impact assessment for the Hornsea Three alone and a CEA for Hornsea Three cumulatively with other activities, plans and projects following best practice guidelines and established methodologies. The NFFO maintain residual concerns in relation to the methodology, specifically: • The methodology is not well suited to producing an assessment that is transparent in considering the extent to which fishing activity may take place within the immediate vicinity of the project site versus, the wider impacts upon fishing activity; • The methodology does not distinguish between the fishing patterns of individual vessels or fleet metiers, so it is not possible to assess whether or not for particular fishing businesses the assessment conclusions are appropriate; and • Concerns in relation to the CEA, and in particular that prior completed projects are having incremental impacts upon commercial fisheries that are stated as being accounted for in the baseline but are not readily evidenced in the EIA. The two parties acknowledge that there are differences in opinion on the approach to the impact assessment and CEA, although the measures outlined in the FCLP are sufficient to address these concerns. **Additional measures** The NFFO and VisNed proposed additional measures, including formation of a community support fund and a commitment to sourcing local vessels for work where practical to do so. As outlined in the Statement of Comment Ground., the Applicant has established voluntary Community Benefit Funds (CBFs) for a number of our projects, which are currently under construction. The Applicant plans to review the interactions of Hornsea Three, as the proposal is refined and consider an appropriate way to feed benefits back into the local community and any decision to establish a community benefit fund for Hornsea Three would be made post financial investment decision. With regard to sourcing of local vessels, whilst there will be opportunities for local fishing vessels to tender for work packages during construction, operation and maintenance and decommissioning of Hornsea Three (e.g. guard vessels), the Applicant cannot give a specific commitment to sourcing local vessels at this time.	

Carl Baker and David Baker (REP1-191)

Summary

2.64 This response extends to the written representations submitted by Affected Persons as identified in the Book of Reference (APP-033).

Response to Carl Baker and David Baker (REP1-191)

Interested Party's Written Representation	Applicant's Response
Dear Sirs We write on behalf of our above named clients to reserve the right to speak at the Open Floor hearings to be held on Monday 3 December 2018 and Monday 28 January 2019 in connection with the above project. We will confirm before the hearings who will be speaking on our client's behalf. The topics they wish to address at the hearing are the suggested alternative cable route and the effect the proposed cable route would have on any residential development on the affected land. If any further information is required, please contact Christopher Bond whose details are shown below. Could you please confirm receipt of this email. Yours faithfully Christopher Bond	The Applicant would refer to the Applicant's Comments on Relevant Representation RR-067 submitted at Deadline 1 (REP1-131), the Applicant's Response to the ExA's First Written Question Q1.9.1 (REP1-122) and to the Applicant's Compulsory Acquisition (CA) Schedule (REP1-134) which sets out the attempts made by the Applicant to enter into a voluntary agreement with the landowner.

Cllr Greg Peck (REP1-194)

Summary

2.65 Councillor Greg Peck, Norfolk County Councillor, Reepham Devision and District Councillor, has submitted one written representation at Deadline I (REP1-194). The written representation raises concerns regarding the onshore main construction compound location at the form Oulton Airfield, in particular to associated traffic impacts.

2.66 The Applicant refers to Appendix 16 and 20 to the Applicants response to Deadline 1 (REP1-174 and REP-176) which provide commentary on matters relating to the main construction compound and an update on the cumulative effects assessment presented within the Application.

Response to Cllr Greg Peck

Interested Party's Written Representation	Applicant's Response
In respect of Oulton Airfield and the surrounding area, also the cable route crossover area with Vattenfall's Norfolk Vanguard and Boreas scheme's just outside Reepham, I would request that these areas are inspected as part of the Accompanied Site Inspection. 1) Oulton Airfield and surrounding area because on the major impact on the local community, numerous highways issues and	The suggestion for site visit locations is noted. In respect to the main construction compound at the former Oulton Airfield, please see Appendix 20 to the Applicant's response to Deadline I (REP1-176), particularly Sections 4 in respect of site selection process for the main construction compound and Annex A and B relevant to traffic and transport impacts along The Street (including the relevance of historic

Interested Party's Written Representation	Applicant's Response
the length of time that the Airfield will be used as the main storage compound. Planning applications in this location have been turned down in the past due to Highways Department concerns about frequent HGV movements on what is effectively single track roads, with no passing places. 2) The area around the B1145, Cawston Road, just North of Reepham because this is the area where Vattenfall's Vanguard and Boreas cable routes cross with Orsted's. Measures must be taken to ensure the cumulative detrimental impact of both projects on the local highway network and local community is kept to a minimum.	planning applications at the site). The Applicant would also refer to Appendix 16: Applicant's Response to Ex.A Question 1.15.3 submitted at Deadline 1 (REP1-174) which provides, in Table 4.1, an update on the assessment of cumulative impacts which may arise as a result of Hornsea Three in combination with Norfolk Vanguard/Norfolk Boreas for all topic area.

Cllr Graham Everett (REP1-197)

Summary

2.67 Councillor Graham Everett, District Councillor for Reepham Ward, has submitted one written representation at Deadline I (REP1-197). The written representation raises concerns regarding the onshore main construction compound location at the form Oulton Airfield, and at the proposed crossing point of Hornsea Three and Norfolk Vanguard/Norfolk Boreas.

2.68 The Applicant refers to Appendix 16 and 20 to the Applicants response to Deadline 1 (REP1-174 and REP-176) which provide commentary on matters relating to the main construction compound and an update on the cumulative effects assessment presented within the Application.

Response to Cllr Graham Everett

Interested Party's Written Representation	Applicant's Response
As the elected District Councillor for Reepham Ward and prior to deadline 1 on Wednesday 7 November 2018, I wish to notify you of my request to speak at an Open Floor Hearing and an Issue Specific Hearing. Furthermore, I wish to notify you that I wish to attend an Accompanied Site Inspection. However, this would only be on matters relevant to Oulton Airfield and the surrounding area, also the cable route crossover area with Vattenfall's Norfolk Vanguard and Boreas scheme's just outside Reepham. I would request that both these areas are inspected as part of the Accompanied Site Inspection; the Oulton Airfield and surrounding area because on the major impact on the local community, numerous highways issues and the length of time that the Airfield will be used as the main storage compound. The area around the B1145, Cawston Road, just North of Reepham because this is the area where Vattenfall's Vanguard and Boreas cable routes cross with Orsted's. Measures must be taken to ensure the cumulative detrimental impact of both projects on the local highway network and local	The suggestion for site visit locations is noted. In respect to the main construction compound at the former Oulton Airfield, please see Appendix 20 to the Applicant's response to Deadline I (REP1-176), particularly Sections 4 in respect of site selection process for the main construction compound and Annex A and B relevant to traffic and transport impacts along The Street (including consideration of the cumulative scenario with Vattenfall). The Applicant would also refer to Appendix 16: Applicant's Response to Ex.A Question 1.15.3 submitted at Deadline 1 (REP1-174) which provides, in Table 4.1, an update on the assessment of cumulative impacts which may arise as a result of Hornsea Three in combination with Norfolk Vanguard/Norfolk Boreas for all topic area.

Interested Party's Written Representation	Applicant's Response
community is as minimal as possible.	

Cadent Gas Limited (REP1-198)

Summary

2.69 This response extends to the written representations submitted by Affected Persons as identified in the Book of Reference (APP-033).

Response to Cadent Gas Limited (REP1-198)

Interested Party's Written Representation	Applicant's Response
Cadent has been liaising with the Applicant in relation to the impacts of the proposed scheme on its existing apparatus and interests and to agree protective provisions to be included within the DCO to ensure that its apparatus and land interests are adequately protected and to include compliance with relevant safety standards. The form of the protection provisions is not yet agreed and, in the interests of costs and expediency while the parties continue to negotiate, Cadent does not submit any further detailed written representations at this time. Cadent reserves the right to make further representations as part of the examination process and, if negotiations do not progress, will submit to the Examining Authority its preferred protective provisions by the deadline for the submission of comments on the revised draft DCO (Deadline 3). Cadent has not received a draft SoCG from the Applicant but is otherwise willing to enter into such a statement to record the level of agreement reached as part of future deadlines.	The Applicant notes Cadent's desire not to submit further representations at this stage and acknowledges that Cadent reserves the right to do so for future deadlines. The Applicant will continue liaising with Cadent to agree the drafting of the protective provisions to be included in the DCO. In the event that agreement cannot be reached, the Applicant considers that the protective provisions in the draft DCO provide adequate protection for Cadent's apparatus.

Natural England (REP1-213)

Summary

2.70 Natural England written response to Deadline 1 is structured as follows:

- Section 2 introduces the status and functions of Natural England.
- Section 3 is an account of the legislative framework.
- Section 4 is an account of the policy framework.
- Section 5 describes the statutory nature conservation and landscape designations, features and interests that may be affected by the Project and need to be considered.
- Section 6 comprises Natural England's submissions in respect of the issues that concern it. This submission cross-refers to, and is supported by, the evidence contained in the Annexes.

- Annex A (REP1-212) provides Natural England's responses to the first round of Examining Authority's written questions.
- Annexes B-E contain Natural England's detailed comments on various nature conservation topics.
- Annex F (REP1-204) provides a list of additional documents supplied by the Applicant after submission of the Relevant Representations.
- Annex G (REP1-205) contains the summary of Natural England's Relevant Representations.
- Annex H (REP1-206) summarises Natural England's comments on the Relevant Representations submitted by other parties.
- Annex H (REP1-207) contains the summary of Natural England's Written Representations.
- REP1-208 Natural England: Offshore windfarm cabling: ten years' experience and recommendations.

Applicants Comments on Section 6 to Natural England's Written Representation

2.71 A point by point response to Section 6 of Natural England's Written Representation is documented in below. Section 6 comprises Natural England's submissions in respect of the issues that concern it. This submission cross-refers to, and is supported by, the evidence contained in the Annexes.

Applicant's Comments on Annex A to Natural England's Written Representation

2.72 The Applicant's Comments on Annex A to Natural England's Written Representation is provided in Applicant's comments on resposnes to the ExA's Written Questions submitted by interested parties at Deadline1. Annex A provides Natural England's responses to the first round of Examining Authority's written questions.

Applicants Comments on Annexes B – E to Natural England's Written Representation

2.73 The Applicant has responded to Annex B – E below

Applicant's comments on Annexes D1 to D7 to Natural England's Written Representation

2.74 The Applicant has responded to each of Natural England's seven Annex Ds (D1 to D7) to their Written Representation in the following order:

- D4 Hornsea Three JNCC and NE advice on offshore benthic ecology;
- D5 Hornsea Three NE and JNCC advice on benthic sections of the HRA;
- D6 Hornsea Three NE and JNCC advice on MCZ Assessment;
- D1 Hornsea Three NE advice on the WNNC SAC Clarification note;
- D7 Hornsea Three NE advice on benthic characterisation;
- D2 Hornsea Three NE and JNCC advice on cable protection note; and
- D3 Hornsea Three NE and JNCC advice on sandwave levelling.

2.75 The reason for this is that the Applicant considers that Annex D4 effectively constitutes Natural England and JNCC's main response on benthic ecology (alongside comments on the Report to Inform Appropriate Assessment in D5 and the Marine Conservation Zone (MCZ) Assessment in Annex D6), summarising all the key benthic issues. Within Annex D4 (and also Annexes D5 and D6), cross reference is made to the four other Annexes, which cover more detailed technical topics. Comments on these more technical Annexes have been subsequently responded to in turn by the Applicant.

2.76 The Applicant would also note that the maximum design scenario has been refined to reduce some of the conservatism in the MCZ assessment with respect to Markham's Triangle pMCZ. The Applicant is pleased to confirm to the Ex.A and Natural England/JNCC that the result of this work is that the maximum design scenario for infrastructure to be installed within Markham's Triangle pMCZ has been reduced from 24% to 10.5%. The implications of this reduction in design envelope are substantial for the predicted extents of temporary and long-term/permanent habitat loss within Markham's Triangle pMCZ, which are fully discussed in the Applicant's response to Annex D6 of Natural England's Written Representation.

Applicant's Comments on Natural England paper: Offshore windfarm cabling: ten years' experience and recommendations

2.77 The Applicant has not provided detailed comments on the Natural England offshore wind cabling: ten years' experience and recommendations paper but has provided a high-level commentary on the key points, as outlined below. Given the short window for review, the Applicant will continue to consider this paper and may have further comments to make at a later date.

Natural England Case Studies and Evidence

2.78 A number of sections of the paper refer to unspecified offshore wind farm projects, making unsubstantiated statements, without providing specific reference to the projects or sufficient detail of the circumstances (e.g. Annex 1, Page 12 refers to "At one site it was proposed...", "At another offshore windfarm..." and "installation at x windfarm"). It is therefore not clear if the paper is fully representative of industry experience, given the sample size (number of projects) and other detail is not provided.

2.79 As such, it is not possible to determine whether and to what extent these experiences are relevant to Hornsea Three. This is important for examples of good practice (e.g. the two offshore wind farm examples cited in Section 7, page 9 on micrositing) and to validate statements made with regard to significant impacts (e.g. Section 7, page 10 on the reference to cable protection possibly causing a breach as Spurn Head; a statement which the Applicant feels needs to be evidenced).

Section 2

2.80 The Applicant notes that the offshore wind industry has evolved over the past ten years. The Applicant would note that one key step change in offshore wind farm development in recent years has been in cable development, enabling a much greater power output to be delivered per cable, compared with Round 1 and Round 2 projects (i.e. >400 MW per cable for most recent Ørsted projects compared to ~35 MW per cable for Burbo Bank and ~160 MW per cable for London Array). As outlined in response to Sections 5 and 6 below, the Hornsea Three application has considered the lessons learned by the offshore wind industry in recent years and, as such, the Hornsea Three Project Description encompasses a suitably realistic and extensive design envelope to account for any future developments in offshore cabling technologies.

2.81 With respect to the comments by Natural England (Section 2, page 3) on HVAC and HVDC transmission systems, the Applicant would refer the Ex.A to the Transmission System (HVAC/HVDC) Briefing Note as submitted at Deadline I (REF1-164), on the reason for inclusion of both transmission systems within the project design envelope.

Section 3

2.82 The Applicant notes the comments made by NE in this section, but would highlight that as outlined in response to the Ex.A question Q 1.2.10 (REP1-121), there is considerable evidence on the sensitivity and recoverability of a wide range of marine habitats, including mixed and coarse sediment habitats, both from the offshore wind industry and other similar offshore industries.

2.83 As set out above, the Applicant would note that the Hornsea Three project design envelope was designed to be both realistic to encompass all possible impacts (learning lessons from previous offshore wind developments) and sufficiently broad to ensure a justifiable degree of flexibility to take into consideration and allow the use of future technologies. The aim of such an approach is to ensure robust and thorough assessments through the EIA and HRA processes, with the objective of avoiding post consent frustrations outlined in the Natural England's response.

Section 4

2.84 The Hornsea Three Environmental Statement (Volume 2, Chapter 2: Benthic Ecology; APP-062) and RIAA (APP-051) fully considers both the pressures identified by Natural England and how the impact of these pressures may affect protected features of marine protected areas.

Sections 5 and 6

2.85 Volume 1, Chapter 3: Project Description of the Environmental Statement has been developed drawing on the Applicant's offshore wind experience and the lessons from offshore wind farm projects developed in Round 1 and Round 2, as highlighted by Natural England's comments. This includes specific activities with were not included in historic Round 1 and Round 2 offshore wind farm applications, including:

- Sandwave and boulder clearance activities;
- Cable remedial burial and repair activities during the operation and maintenance phase; and

- Realistic maximum volumes of cable protection to ensure adequate protection of cables, if required.

2.86 As outlined above, the project design envelope was designed to be broad enough ensuring adequate flexibility to include a range of cable installation tools, including new technologies that may come forward in the coming years, and a large enough footprint to account for all construction related activities (e.g. sandwave and boulder clearance).

2.87 With regard to the Natural England comments on the requirement for detailed information on ground conditions and the use of this to determine likelihood of success (section 6, Page 6), the Applicant has sought to clarify below how detailed survey data collected post consent is used to inform a Cable Burial Risk Assessment (CBRA). The Applicant would note that a CBRA does not determine the likelihood of burial success and therefore would not inform the amount of cable protection required on a specific project.

2.88 Detailed pre-construction (and post consent) geophysical and geotechnical surveys will be undertaken across the offshore cable corridor. These will be used to inform the CBRA within the Cable Burial Plan (as required by Schedule 11, Condition 13(1)(h) (generation assets DML) and Schedule 12, Condition 14(1)(h) (transmission assets DML) of the DCO Version 1, submitted for Deadline 1).

2.89 The first step of the CBRA is to calculate the reference seabed level (RBSL). This will be the lowest expected seabed level for the lifetime of the asset, taking into account the natural mobility of the seabed across the offshore cable corridor. The CBRA will then identify any key anthropogenic risks to the cable e.g. anchors threats, fishing gear etc. These risks and hazards have an associated penetration depth against which mitigation is required. This mitigation depth, along with the eventual constraints from natural hazards is combined, with the RBSL, to calculate a design burial depth. The target burial depth is obtained from the design burial depths by using options within consents regarding protection of the cable (principally via the sediments within which the cables will be buried, but to a lesser extent rock protection) throughout the asset lifetime.

2.90 In some cases, remedial burial may be necessary. This would be in cases were unforeseen ground conditions are encountered during installation and the target burial depth is not achieved. It should also be noted that the cable will not be buried to the target burial depth should burial to this depth compromise the thermal limits of the cable design.

2.91 The CBRA will be conducted in accordance with the best available industry guidance, i.e. currently the 'Application Guide for the specification of the Depth of Lowering using the Cable Burial Risk Assessment (CBRA) methodology' written by the Carbon Trust (2016). The CBRA guidance was published to provide a standardised, systematic, quantitative and robust method for assessing the risks affecting offshore wind farm cables and to specify the required protection level. The main objective of the CBRA method is to optimise the burial depth of offshore wind farm cables in terms of specifying an economically feasible burial depth which ensures a satisfactory level of protection and by implication, residual risk. The CBRA guidance advances fundamental concepts already established in the industry by adding a pragmatic approach, ultimately proposing an innovative fit for purpose methodology for the assessment of the protection of subsea cables for offshore wind farms.

2.92 This assessment gives a mechanism to assess the as-built risk and identify the requirement for further burial or rock protection post-installation. If the threat line depth is not achieved, a CBRA can be conducted to re-assess the requirement to achieve this depth.

2.93 A CBRA therefore does not determine the likelihood of burial success (and therefore would not inform the amount of cable protection required on a specific project), but rather informs the target burial depth and tooling, according to external risk factors. It should be noted that the information contained within the CBRA and Cable Burial Plan, including target burial depths and installation methods and tools to be used during construction, will form part of the Cable Specification and Installation Plan and the Construction Method Statement. Both of these will be submitted for approval to the MMO, in consultation with Natural England (see as required by Schedule 11, Condition 13(1)(c and h) (generation assets DML) and Schedule 12, Condition 14(1)(c and h) (transmission assets DML) of the DCO Version 1, submitted for Deadline 1).

Section 7 and 8

2.94 Natural England have provided a number of proposed recommendations (including mitigation measures) which have been taken into account in the Hornsea Three DCO application. These included:

- Routing of cables to avoid habitats with no recovery potential (e.g. chalk and clay exposures within the Cromer Shoal Chalk Beds MCZ);
- A commitment to microsite cables around Annex I reef features, including those areas where Annex I reef have consistently been recorded within the North Norfolk Sandbanks and Saturn Reef SAC;
- Consideration of Horizontal Directional Drilling within the project design envelope (with site specific geotechnical investigation showing this is possible);
- Consideration of project lifetime effects of cabling: The impacts of cabling were assessed as a throughout the lifetime of Hornsea Three, with consideration of potential reburial and repair as part of the maximum design scenario;
- Inclusion of robust monitoring of habitats within marine protected areas following cable installation (see updated In Principle Monitoring Plan submitted at Deadline I; REP1-180).

2.95 The applicant would note that placement of cable protection perpendicular to the sediment transport direction is impractical. For asset crossings, the crossing is determined by the orientation of the asset to be crossed. For remedial protection (i.e. cable protection laid on exposed, or insufficiently buried cables) the orientation of the cable protection will be entirely dependent on the orientation of the laid cable to be protected.

Response to Section 6 of Natural England's Written Representation (REP1-213)

Interested Party's Written Representation	Applicant's Response
6.1. Introduction 6.1.1. In this section Natural England will set out its concerns and advice regarding the Project at the time of submission of these Representations. In some instances more detailed advice is provided in the Annexes.	This is acknowledged by the Applicant.
6.2. The principal issues 6.2.1. Natural England highlighted the following overarching issues in our relevant representations which were submitted to PINS on 20th July 2018. 6.2.2. Evidence Natural England raised considerable concerns with the standard of evidence provided in support of the application. Natural England is not satisfied that there was insufficient project specific information / evidence presented to characterise the development site in order to fully understand the impacts of this project, or that the best available evidence is being used throughout the application to determine the nature of impacts. Consequently Natural England is unable to reach conclusions beyond reasonable scientific doubt in a number of areas. 6.2.3. Project Proposals Natural England is not satisfied that the project parameters have been clearly defined to enable the impacts of a development to be fully assessed against a realistic Worst Case Scenario (WCS). Consequently Natural England is unable to agree with a number of the conclusions outlined. 6.2.4. Assessment of Impacts Natural England is not satisfied that sufficient precaution has been built into the analysis to address the uncertainties arising from a lack of site specific data and detailed proposals. Natural England does not agree with the approach taken for the assessment of the impacts over the lifetime of the project and do not consider that the implications of a 'phased build' scenario had been fully considered. 6.2.5. Cumulative / in-combination assessment Natural England is not able to reach a conclusion on the significance of effects of the project alone and in-combination as a result of the uncertainties arising from the lack of site specific data and approach to data analysis. 6.2.6. As a result of the fundamental concerns raised above, Natural England is unable to state beyond reasonable scientific doubt that there will be no adverse effect on site integrity for the	The Applicant has responded to these points in the Applicant's response to Natural England's Relevant Representation (RR-097) submitted at Deadline I.

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relevant SPAs and SACs, or that the conservation objectives of the relevant MCZs will not be hindered. 6.2.7. Natural England has also set out a number of additional issues within our relevant representation which are explored further within this representation in the sections below and within the annexes. As many of Natural England concerns are fundamental in nature, much of our advice remains at a high level. Consequently we have not been able to identify every element of the application and the ES that we may disagree with within this representation. Therefore, a lack of reference to a specific point or issue should not necessarily be taken to indicate agreement from Natural England.	
6.3. Progress since the Relevant Representations 6.3.1. Since the Relevant Representations were submitted to PINs on 20th July 2018 Natural England has had further communications with the Applicant to discuss our submission and outstanding points of concern. During this period Natural England has also engaged with the Applicant to set out matters of agreement and disagreement on topics other than offshore ornithology and benthic ecology. The full details of these matters are set out in the draft All Other Matters Statements of Common Ground (SoCG) which are to be submitted by the Applicant at Deadline 1. The topics, where agreement in-principle has been reached, include: fish and shellfish ecology and seascape and visual resources 6.3.2. A schedule of meetings that took place after the Relevant Representations is provided below: • 25th July 2018 – A teleconference call to clarify points included in Natural England's relevant Representations; • 6th Septemeber 2018 – A call to discuss further engagement on drafting the SoCGs; • 2nd October 2018 – A meeting, where the Applicant provided an update on the information included in the additional documents prepared on the topics of: marine mammals, benthic ecology and offshore ornithology; • 25th October 2018 – A teleconference call on the contents of the All Other Matters SoCG (with a focus on marine mammals); • 26th October 2018 - A teleconference call on the contents of the All Other Matters SoCG (with a focus on onshore ecology). 6.3.3. During these discussions, the Applicant has supplied a number of 'clarification notes.' Natural England and the full list of documents provided is included in Annex F. It is Natural England's view that the contents of some of those documents is far more technical than just a 'clarification note' and it is our view that a major part of that information should have been submitted as part of the DCO Application to support the ES. 6.3.4. Natural England has made every effort to review the additional documents and incorporate the information into the Written Representations. However, this has not been possible for all the topics due to when the documents have been	The Applicant acknowledges the engagement had with Natural England. The Applicant has, on a number of occasions, requested further meetings with Natural England to discuss the matters of benthic ecology and offshore ornithology following the provision of clarification notes by the Applicant to address concerns made in Natural England's Relevant Representation (APP-097). The Applicant would like to reiterate that engagement is required in order to move forward with the two SOCGs on these respective matters, however, to date, Natural England have not yet been able to commit to such meetings.

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received and the volume and content of the documents supplied. Relevant sections and Annexes of the Written Representations clearly state whether new information has been taken into account in formulating our comments. Natural England encourages the Applicant to submit these additional documents to PINS as part of the examination.	
6.4. Development Consent Order and Deemed Marine Licenses 6.4.1. While there has been significant progress on some of the issues raised in our relevant representation, a number of Natural England's concerns on the Development Consent Order (DCO) and Deemed Marine Licenses (DMLs) still remain. 6.4.2. It is our view that significant changes are still required to ensure that the DCO and DMLs are fit for purpose and acceptable. The main outstanding areas of concern are: • The arbitration articles, related dML conditions and Schedule 13. • The outstanding discrepancies between project values in the DCO, DML and ES Project description. • The timing for pre-construction document submission. 6.4.3. In addition, we have requested additional changes and further clarifications subsequent to our Relevant Representations. Natural England's detailed comments on the DCO and DML can be found in Annex B.	The Applicant has provided detailed responses to the comments raised in Annex B of Natural England's Written Representation below, including responses to the three outstanding areas of concern stated here.
6.5. Ornithology 6.5.1. Natural England does not consider that the data provided in support of this application are sufficient to adequately characterise bird abundance and density in the Hornsea Three Project Area and are consequently unable to form any conclusions about the significance of the impacts presented by the applicant that are dependent on these data. 6.5.2. Natural England also has a number of concerns with the approach to various different aspects of the analyses of impacts, which further reduces the confidence in the applicant's conclusions. 6.5.3. Consequently, Natural England is unable to conclude beyond reasonable scientific doubt that the conservation objectives of designated sites will not be hindered as a result of the proposals outlined in this application. 6.5.4. The main areas of concern relate to: • Baseline Data Collection and Analysis Methodology; • Collision Risk Modelling (CRM); • Assessment of Displacement Impacts; • Assessment of Cumulative and In-combination Effects; • Population Modelling Approaches and Population Impacts; • Phenology, Population Scales and Apportioning to individual	The Applicant has provided a number of clarification notes as part of their submission to Deadline I that deal with many aspects of Natural England's Written Representations. It is noted from Annex F of Natural England's Written Representation that Natural England had not reviewed these notes in time for Deadline 1. Additional comments on specific sections of Natural England's Written Representation are provided in the table relevant to Annex C below.

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SPAs; • HRA Screening and LSE conclusions; • Habitats Regulations Assessment (HRA); • Environmental Impact Assessment (EIA); • Inaccurate and missing information and data presentation in Application documentation; • The need to present data and predicted impacts in a way that allows the full range of uncertainty (e.g. around input data, analysis, methodology) to be understood and evaluated; • Migratory Bird Analysis. 6.5.5. Detailed comments on all of these areas can be found in Annex C.	
6.6. Benthic ecology and protected sites 6.6.1. Natural England continues to disagree with the conclusions of the Habitats Regulations and Marine Conservation Zone assessments for North Norfolk Sandbanks and Saturn Reef SAC, The Wash and North Norfolk Coast SAC, Cromer Shoal Chalk Beds MCZ and Markham's Triangle pMCZ. 6.6.2. It is our view that there is sufficient uncertainty (reasonable scientific doubt) in relation to the impact assessments on the features, and recoverability of the features, to have limited confidence in HRA conclusions and the Stage 1 conclusion. It is our view that there is a risk of Hornsea Project Three hindering the achievement of the conservation objectives for the designated sites.	As outlined in the summary above, the Applicant has provided responses to the detailed comments in Annex D1 to D7 of Natural England's Written Representation, below. This includes clarification of the Applicant's position that Hornsea Three will not result in an adverse effect on integrity of the North Norfolk Sandbanks and Saturn Reef or the Wash and North Norfolk Coast SACs, nor will Hornsea Three hinder the achievement of conservation objectives of the Cromer Shoal Chalk Beds MCZ or Markham's Triangle pMCZ. While this is the Applicant's position, the Applicant has worked to reduce some of the conservatism within project design envelope, with the maximum design scenario for infrastructure to be installed within Markham's Triangle pMCZ now reduced from 24% to 10.5%, with substantial reductions in the effects on the features of the pMCZ (discussed further in the Applicant's response to Annex D6 of Natural England's Written Representation below). The Applicant is also willing to meet with Natural England and JNCC to discuss their concerns and any potential mitigation measures which may help to reduce the perceived risk to qualifying features of the SACs and reach a resolution on this point.
6.7. Marine processes 6.7.1. At the Relevant Representations stage Natural England raised several overarching issues regarding marine processes, these comments remain valid. 6.7.2. Please note that there is further reference to marine processes in the context of designated sites within Annexes D1-D7 of this Written Representation.	As per the response on Benthic ecology and protected sites, the Applicant has provided detailed responses to Natural England's comments in Annexes D1 to D7 to their Written Representation.
6.8. Marine mammals 6.8.1. At the Relevant Representations stage Natural England raised a number of issues regarding potential impacts to marine mammals. We have since had discussions with the Applicant regarding some of those points. Areas of agreement between Natural England and the Applicant are included in the draft All	With respect to the cumulative effect assessment of all noisy activities (incl UXO clearance), the Applicant's CEA is based on all publicly available information on noisy activity and has previously set out the limitations with regard to the assessment of UXO clearance at this stage in light of the uncertainty in relation to the nature and extent of activities for other plans and projects given the lack of public domain information on these

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Other Matters SoCG provided by the Applicant. 6.8.2. For any points not agreed in the SoCG, the submissions made in the Relevant Representations are still valid and should be considered as outstanding points of concern. These relate to: • Cumulative effect assessment of all noisy activities (inc. unexploded ordnance clearance); • Southern North Sea cSAC/SCI HRA assessment in combination with other plans or projects; • Natural England currently cannot agree that the Site Integrity Plan (SIP) is the appropriate control measure to manage concerns relating to in-combination disturbance effects on marine mammals. It is our view that agreement on the HRA conclusions needs to be achieved in the first instance, as those are carried over into the SIP. 6.8.3. Additional minor comments on the ES Vol. 2 Ch. 4 – Marine Mammals, that were not included in the Relevant Representations, are provided in Annex E. 6.8.4. Natural England has received three additional documents from the Applicant since submission of the Relevant Representations and will review them in due course. • In-Principle Southern North Sea SCI Site Integrity Plan • In-Principle Monitoring Plan • A review of precaution in the marine mammal assessment – Clarification Note We suggest the Applicant submits these documents as part of the examination. 6.8.5. A European Protected Species (EPS) license will be required to cover the risk of disturbance to all cetacean species identified as likely to be in the area under the Offshore Regulations 2017. Natural England can confirm that we have received a draft EPS licence provided by the Applicant and we do not have any further comments to make.	(as presented in Table 3.2 of the All other Matters SoCG with Natural England as submitted at Deadline I). The Applicant notes that should any firm proposals come forward for UXO clearance from other developments which may overlap in time with the construction of Hornsea Three, then they will be included within the assessments that will inform the SIP, and indeed require their own assessment and accompanying SIP as part of their licence application. Furthermore, as identified by the Applicant in the clarification note 'consideration of precaution within the marine mammal assessment', as submitted at Appendix 14 of the Applicant's response to Deadline I, the cumulative / in-combination are precautionary and assessments will have significantly overestimated both the level of activity that may overlap and the duration of that activity. Therefore, it is likely that the existing assessment will have captured the effect of any UXO clearance (if undertaken) associated with other wind farm projects, that may overlap with the construction of Hornsea Three. With respect to the outstanding points of concern in relation to the Southern North Sea cSAC/SCI HRA assessment in combination with other plans or projects, the Applicant maintains that HRA in-combination conclusions are robust. The commitment to a Site Integrity Plan in condition 13(5) of the generation assets DML and 14(5) of the transmission assets DML (Schedule 11 and 12 respectively of the draft DCO (Version 1, submitted for Deadline I)) will ensure that prior to the commence of construction the undertaker has accurately (based on final scheme design and certainty with regard to overlapping projects) represented any risk to site integrity and applied any necessary mitigation to reduce effects to acceptable levels. The Applicant welcomes further clarity from Natural England on its concerns with regard to the SIP. The Applicant has responded positively to the requests within the Relevant Representations from Natural England and the MMO to commit to a SIP. The Applicant has submitted (at Appendix 15 of its response to Deadline 1) a draft SIP that has been developed in line with other publicly available examples (e.g., East Anglia THREE). The Applicant maintains (as stated above) confidence that its HRA is robust and that the control measures (in the form of SIP) are pragmatic and enforceable and the Applicant considers that it is in agreement with the MMO in this regard (as evidenced in the SoCG between the MMO and the Applicant as submitted at Deadline I, and the MMO's response to Ex.A Question 1.2.114). With respect to the additional minor comments received – please see the point by point response on Annex E below. With respect to the additional documents, the Applicant can confirm that these were submitted for Deadline I at Appendix 15, Appendix 2 and 14 respectively.
6.9. Onshore ecology 6.9.1. At the Relevant Representations stage Natural England	6.9.1 The Applicant has provided clarifications to Natural England as part of the SoCG process [see REP1-218] and at

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raised a number of issues regarding potential impacts to onshore ecology. We have since had discussions with the Applicant regarding some of those points. Areas of agreement between Natural England and the Applicant are included in the draft All Other Matters SoCG provided by the Applicant. 6.9.2. For any points not agreed in the SoCG, the submissions made in the Relevant Representations are still valid and should be considered as outstanding points of concern. These relate to: • Potential impacts on pink-footed goose associated with the North Norfolk Coast SPA – Natural England would like to be consulted on the mitigation plan issued at least 12 months in advance of any construction activities; • Potential impacts on groundwater flows and hydroecology from the onshore cable – Natural England would like to be consulted on pre-construction site-specific cable installation method statements post consent, should a DCO be granted; • Protected species licensing – no draft licences for any terrestrial species had been submitted to Natural England prior to the application submission. We note that other OWF NSIP Applicants have obtained a Letter of No Impediment (LONI) to reassure the Examining Authority that a licence will be granted.	the Deadline 1 submission, which has closed out a number of issues. 6.9.2 a) Pink-footed Geese – the Applicant has updated the Outline CoCP [REP1-142], on Natural England's request to clarify that Natural England will be consulted in this timeframe. Please see the SoCG provided at Deadline 1 [REP1-218] for full details. 6.9.2 b) Groundwater flows – the Applicant has updated the Outline CoCP [REP1-142] to add a provision for Natural England to be consulted at the Blackwater Drain HDD crossing. It has been agreed that this provision and others relating to surface run-off, detailed in the SoCG, have closed out Natural England's concerns relating to groundwater flows and hydroecology. Please see the SoCG provided at Deadline 1 [REP1-218] for full details. 6.9.2 c) The Applicant has submitted a draft badger licence to Natural England prior to Deadline 2 on the 16th November 2018. No work is being proposed which currently would need a licence for other species, with the exception of great-crested newt. An additional HDD crossing has been incorporated into the design, which protects the one bat roost identified on the route. This will be secured through an updated Onshore Crossing Schedule to be submitted at a future Examination Deadline. With regards to GCN, the Applicant is working with the Norfolk Ponds Project to draft an agreement which would enable the licence to be carried out with the (promoted by Natural England) landscape-scale licencing route. This draft licence will be submitted to Natural England by Deadline 3.
6.10. Landscape and visual impact assessment 6.10.1. Natural England raised several issues regarding potential impacts to landscape and visual resources. We have since had discussions with the Applicant regarding some of those points. Areas of agreement between Natural England and the Applicant are included in the draft All Other Matters SoCG provided by the Applicant. 6.10.2. Outstanding points of concerns relate to: • Potential visual impacts of the cable route on the setting of the Norfolk Coast AONB; • Potential effects on the users of the England Coast Path near Weybourne during construction works at landfall.	6.10.1 The Applicant would direct the Examining Authority to the Natural England SoCG [REP1-218]. 6.10.2 a) The Applicant submitted a clarification note on the Impacts on the Qualities of Natural Beauty of the Norfolk Coast AONB at Deadline 1 [REP1-167]. The Applicant welcomes Natural England's feedback on this document. 6.10.2 b) As stated in the SoCG [REP1-142], the Applicant has presented proposed diversions for the Norfolk Coast Path to the North Norfolk Trails Partnership, of which Natural England is a member, for comment. The Applicant welcomes any feedback on this.
6.11. Decommissioning 6.11.1. Natural England acknowledges that a decommissioning plan will be required post consent and that this will be agreed at the relevant time under the provisions of the Energy Act 2004. The decommissioning plan should include an assessment on whether in-combination decommissioning impacts have been assessed fully and, if not, request additional information on the impact assessment. Natural England would welcome a discussion with the Applicant on the potential for in-combination impacts at that time. 6.11.2. Furthermore, Natural England recommends that removal	The Applicant acknowledges the comments made by Natural England with respect to decommissioning. The Applicant would note that the Decommissioning Plan will take account of the latest guidance and advice from stakeholders at the time.

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of scour protection and cables where scour is severe is essential in order for the seabed to return to its natural state as required under OSPAR. These matters should be subject to consideration at the time of decommissioning.	

Response to Annex B (REP1-209) of Natural England's Written Representation

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1.4. Natural England proposes the inclusion of a new requirement within Schedule 1 part 3 of the DCO. The purpose of this new condition would be to require the undertaker to provide confirmation that all construction activities were completed and that the project has entered the full operational phase. It would also confirm that no further major installation work may take place.	The Applicant has considered this request and will provide a requirement to this effect in the next iteration of the draft DCO.
1.5. A requirement needs to be added within the In-Principle Monitoring plan to re-run the Collision Risk Modelling as the first step in the post construction monitoring of ornithological impacts. The monitoring conditions within Schedules 11 and 12 may need to be updated to reflect they cover monitoring and modelling of impacts.	Monitoring should focus on acquiring data to assist in reducing uncertainties for future offshore wind farm assessments rather than re-running the assessment for an already consented project. Orsted has previously explored strategic monitoring to better answer more fundamental questions (e.g. connectivity to colonies, flight height distributions, etc.). Re-running collision risk modelling would not provide any additional information in relation to this and is not a recognised form of monitoring.
1.6. In relation to Schedule 11, Part 2, condition 15 (b) (i). An additional condition needs to be added to the during construction monitoring to ensure that the monitoring report is submitted within 6 weeks of the fourth pile that is monitored and that in the event of major issues works will pause until sufficient mitigation is in place to prevent unacceptable impacts to marine mammals. Natural England proposed the following wording be added to schedule 11: *Condition 15 (b) (iv) The results of the initial noise measurements monitored in accordance with sub-paragraph (i) 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. If, in the opinion of the MMO in consultation with Natural England, the assessment shows significantly different impact to those assessed in the ES or failures in mitigation all piling activity must cease until an update to the MMMP and further monitoring requirements have been agreed.* The reason for this proposed change is that recent reports received on constructing Round 3 offshore wind farm developments have cast doubt over the efficacy of the soft start mitigation measure. It has also highlighted that the standard condition, as drafted, may not be sufficient to ensure piling stops in a situation where the monitoring confirms there is a	In the draft DCO version 1, as submitted for Deadline 1, the Applicant has added a new provision as below, as Schedule 11, Part 2, condition 18(3): *The results of the initial noise measurements generated in accordance with condition 18(2)(a) must be provided to the MMO within 6 weeks of the completion of installation of the fourth foundation of each foundation type for the MMO to determine whether any further noise monitoring shall be required.*

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significant issue. The wording above makes it clear that if the monitoring highlights such failures the undertaker is required to stop until measures are agreed to address any critical failures in modelling or mitigation. This is vital when considering the location of the development in relation to the Southern North Sea cSAC/SCI and the potential for significant impacts on harbour porpoise.	
Part 1, 2, Page 5: The interpretation of 'cable circuit' included states that for HVAC a cable circuit may be one or three cables, bundled together or installed separately. However, table 3.38 of the ES project description (page 31) shows that offshore it will only be one cable, under this definition three separate offshore cables could be installed. While this would be limited by the maximum length of export cable it should be made clear that the maximum number of export cables offshore is six as per ES Project Description table 3.44 (page 36).	The Applicant can confirm that, as per the project description the maximum number of cables will be six.
Schedule 1, Part 1, 1 Works no 2 and 3(d) page 29/30: There are two offshore cable options, one for HVDC and one for HVAC. As HVAC has more cables I have used it as the example, but the issue applies to both descriptions. This is described as up to six cables circuits between works No 2 and 3, 3 and 5. Using the interpretation of cable circuits provided within the DCO this means six circuits each consisting of up to three separate cables (18 export cables).	The Applicant can confirm that this is correct, but no amendment is suggested by Natural England.
Schedule 1, Part 1, Work no 2 and 3(d): Works No 2 and 3 include one or more cable crossings. The ES project description assesses up to 44 cable crossings, the maximum number of crossings should be included. This is important as cable crossings all include deposition of cable protection and the DCO should ensure that the maximum limits are adhered to both for the entire project and for each individual crossing.	The DCO provides a limit the volume and area of cable protection for cable crossings (See Schedule 1, Part 3, requirement 5(5)) which states that the total volume of cable protection associated with cable crossings shall not exceed 784,875 cubic metres with a maximum footprint of 747,500 square metres. As this is the parameter assessed in the Environmental Statement, the Applicant does not consider there to be any need to further define this to a limit per cable crossing.
Schedule 1, Part 1, work no 2 (e): This states up to eight horizontal direction drilling (HDD) exit pits, however, there are only six cables assessed as the maximum scenario. Natural England therefore questions the need for two more exit pits. Additionally works No 3 for HVAC cable installation do not include any HDD exit pits. Natural England is unclear if this an oversight or whether it is anticipated that HVAC not require HDD noting that the project description states that intertidal installation for both types would be the same.	1. The Project Envelope provides for up to two additional HDD exit pits to allow for contingency should an exit pit fail during construction. 2. The Applicant would clarify that Work No.2 covers both transmission technologies, therefore the HDD exit pits it that Work No.2 can be used for both.
Schedule 1, Part 3, 2 (1) Page 33: The wording here gives two scenarios for the design. One is when 160 turbines or less are built, max height is 325 m and rotor diameter is 265 m. The second is for when exactly 300 turbines are built. There is no scenario describing a maximum of greater than 160 turbines of less than 300, therefore Natural England assumes that is not being consented. Confirmation of this should be requested.	The DCO version 1, submitted for Deadline 1, has been amended so that the rotor swept area is used as the parameter to limit the size of turbines, along with the existing measures of height above LAT, rotor diameter and height above LAT form the lowest part of the blade. This additional existing will ensure that the total size, regardless of the number of turbines, will be in line with the ES assessment.

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Schedule 1, Part 3, 6, Page 35: This requirement is for the developer to provide a written scheme to the MMO and local planning authorities outlining all phases of construction. The relevant SNCB should be consulted on this as we may have some comments to make both on and offshore. For example monitoring of Phase 1 may be impacted by the construction of a Phase 1 etc. This requirement should be amended to note that the relevant SNCB will also be consulted.	The current drafting mirrors previous drafting approved by the Secretary of State and as such the Applicant does not consider a change is necessary.
Part 1, 2 (g) Page 128: This simply states site preparation works, but gives no details of the maximum scope. Within the definition of offshore site preparation works is boulder relocation and sandwave levelling. The maximum extent on both should be provided. Additionally, it should be noted for sandwave levelling both maximum volume and maximum area must be stated on the licence. This is due to previous experience where a wind farm developer considered the volume as the limiting factor and impacted on approximately nine times the area assessed. It is vital that when designing the project these limitations are clear in the consent.	The Applicant has removed the definition of site preparation works as these works are adequately defined in Part 1 (2)(a-e). The relevant maximum design parameters for each activity (including volumes for sandwave clearance) are stated in Part 2 of Schedules 11 and 12. These are further discussed below.
Part 1, 6, Page 129: Condition stating the offshore preparation works will not be considered commencement. See Relevant Representations comment 5.15. This condition needs to be removed.	This paragraph has been removed from the DMLs contained in the draft DCO version 1, submitted for Deadline 1.
Part 2, 4, Page 131: It is noted that the DML doesn't included J-Tube cleaning and maintenance for the array, but does include this for the transmission assets. Given that all wind turbines have J-tubes and there have been cases where marine growth around the J-Tube has been a problem, Natural England questions if this is an oversight. It might be worth asking if there is a reason why the generation licence does not need J-Tube maintenance.	This has been added to condition 5 of the generation assets DML contained in the draft DCO version 1, submitted for Deadline 1.
Table B2: Detailed review of the issues related to DCO vs ES Values	
Schedule 1 Part 1, work no 15 Page 31: Within their response, the Applicant totals up the details in the ES project description, which matches the DCO (assuming the 1m3 is a rounding error). However, the document fails to address at all the fact that the site disposal characterisation report assessed around further 200,000 m3 than presented within the ES or the DCO. This discrepancy needs to be explained as it is important, the full figures for disposal are assessed and consented, or it will lead to the potential need for variation or additional consents at a later date. In their reply to the ExA the Applicant has provided a breakdown of the figures that add up to the total disposal volume. Although stated to be part of the aggregate disposal figure, boulder clearance has not been included as part of the breakdown. Natural England considers boulder clearance to be an act of disposal, and therefore request that these figures be included. Natural England also requests that the disposal	The Applicant notes the comments from Natural England in relation to the apparent discrepancy between disposal volumes between the draft DCO/DML and Volume 5, Annex 3.2: Dredging and Disposal Site Characterisation (APP-086). The reason for apparent discrepancy is that the maximum volume for the project as a whole does not include the drill arisings for HVDC converter substations within the Hornsea Three array area, as this results in a smaller overall volume than seabed preparation for the HVAC booster substation on the offshore cable corridor. The HVAC transmission therefore results in the maximum spoil volume for the project as a whole. In the event of a HVDC transmission scenario, the volume in the Hornsea Three array area would be greater (as indicated in Table 2.2 of Volume 5, Annex 3.2: Dredging and Disposal Site Characterisation; APP-086), with a reduction in the volume for the project as a whole (and the offshore cable corridor). The difference between the volumes quoted by Natural England is the difference in volume between the drill arisings for HVDC converter substations and the seabed preparation for the HVAC

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volumes are clearly stated within the DML so that there is a maximum volume of sand, boulders, drill arising etc. individually presented and not just a single overarching volume.	booster substations. Regarding Natural England's comments that boulder clearance to be regarded as an act of disposal, at this stage, the Applicant does not envisage that there will be a need to bring the boulders on to a vessel at the surface when they are being cleared. However, if it transpires that this is a preferred option then the Applicant would seek a separate standalone licence for such an activity. The relevant breakdown of disposal material is clearly outlined in Table 2.2 of Volume 5, Annex 3.2: Dredging and Disposal Site Characterisation of the Environmental Statement (APP-086).
Schedule 1 Part 3, requirement 3(1) Page 33: In their response to the ExA the Applicant only refers to table 3.9. However, the DCO schedule 1, part 3, 3(1) says max 21 structures and table 3.9 says 19. Clarification is still required as this question has not been answered.	The Applicant would respond that the figure of 21 is correct. The maximum design scenario would consist of: 12 offshore transformer substations, six subsea booster stations and three offshore accommodation platforms. This totals 21 structures.
Schedule 1, Part 3, requirement 4 Page 35: The Applicant has confirmed in their response to the ExA that they got the figures wrong on schedule 12 transmission DML and that the correct scour volume there should be 291,200 m3. We are satisfied that the total within the ES is accurate and therefore once the dML is corrected then no further action is required.	This correction has been made in the draft DCO version 1, as submitted for Deadline 1.
The Applicant has confirmed that the discrepancy in cable length is because the interconnector cable is included on both DMLs. This is not ideal, as it could allow for additional cable protection to be installed, exceeding the maximum volumes assessed as the WCS in the ES. Natural England requests that there be a requirement to provide notice pre construction on whichever DML the interconnector cables are being built under, thus reducing the maximum cable and cable protection that can be used under the other DML. This would also require the DMLs to state separately the volume of cable protection required for the interconnector. This needs to be made clear, as currently it is not, and secured through improved wording.	This is already envisaged and catered for by Schedule 11, Part 2, condition 3, which states that, for Schedule 11: "*The total length of the cables in Work No.1(c) and the volume of their cable protection (excluding cable crossings) when combined with the cable authorised under Work No.2(c) of the deemed marine licence granted under Schedule 12 of the Order must not exceed the following..*" There is a corresponding condition in Schedule 12. Therefore, the total cable protection for both licences cannot exceed the given figure.
Table B3: Progress on the discussions on the issues raised in Relevant Representations	
Partially resolved but many matters are still an issue, see A.2 below.	This is a general point which is dealt with by the Applicant throughout these comments.
Schedule 1, Part 3 requirements 5 (4) and (5), Page 35: The Applicant's response has not explained the discrepancies found between the DCO and DML values recorded. This may be caused by a mixture of the double licencing of the interconnector cables (i.e. they have double licenced the protection volumes) and the Applicant not including the cable protection for cable crossings in the DMLs which would need correcting. Additionally, within the ES project description table 3.48 is misleading as it has the figures for total rock protection which match that used for the export cable, however it is not	Regarding double counting of the length of cable, the provisions of the DMLs envisage and cater for the need not to double count the interconnector cable. This is contained in Schedule 11, Part 2, condition 3, which states that, for Schedule 11: "*The total length of the cables in Work No.1(c) and the volume of their cable protection (excluding cable crossings) when combined with the cable authorised under Work No.2(c) of the deemed marine licence granted under Schedule 12 of the Order must not exceed the following..*" There is a corresponding condition in Schedule 12. Therefore, the total cable protection for both licences cannot exceed the

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appropriately labelled as such. This needs clarification, but may explain the discrepancy between the ES project description and the DCO total values.	given figure. In Table 3.48 of Volume 1, Chapter 3: Project Description of the Environmental Statement (APP-058), the last two rows were included in error. These are the areas/volumes associated with export cable protection, as included in Table 3.46. The total seabed area affected by crossings is 660,000 m2 as stated in the Response to the Planning Inspectorate's Section 56 advice – Relationship Between Design Parameters Draft Development Consent Order and Environmental Statement document (and as assessed in the Environmental Statement).
Schedule 11, Part 2, Condition 12 The proposed resolution is mostly acceptable. However it should be noted that Natural England has asked for an extension to the four month period.	The Applicant notes that the conditions (now numbered 14 in Schedule 11 and 15 in Schedule 12) allow the four month period "unless otherwise agreed". The Applicant therefore considers this provision to be acceptable.
Schedule 11 and 12 – paragraph 10, Arbitration No Change. This response does not adequately address Natural England's concerns, or seek to address them. The arbitration article proposed is significantly different to the cases referenced. Natural England refers to the comments made in our Relevant Representation.	The Applicant notes these comments but has no further comments with regards to the arbitration provisions of the draft DCO beyond those made previously.
Schedule 13, Rule 6(4): As per arbitration, this does not adequately address our concerns.	In the draft DCO version 1, as submitted for Deadline 1, the Applicant has amended this provision as below (new wording underlined, removed wording shown with a strikethrough): *The Arbitrator will award recoverable costs on the general principle that each party should bear its own costs ~~follow the event~~, having regard to all material circumstances, including such matters as exaggerated claims and/or defences, the degree of success for different elements of the claims, claims that have incurred substantial costs, the conduct of the parties and the degree of success of a party.*
Schedule 13, Rule 7(2): This is an acceptable resolution, subject to the provision and review of updated wording.	In the draft DCO version 1, as submitted for Deadline 1, the Applicant has amended this provision as below (new wording underlined): *The parties and Arbitrator agree that any matters, materials, documents, awards, expert reports and the like are confidential and shall not be disclosed to any third party without prior written consent of the other party, save for any application to the Courts or where disclosure is required under any legislative or regulatory requirement.*
Article 2, draft DCO, paragraph 1 of each of Schedule 11 and Schedule 12: This is an acceptable solution, subject to the provision and review of an updated definition of commence.	In the draft DCO version 1, as submitted for Deadline 1, the Applicant has amended these definitions as below (removed wording shown with a strikethrough): Article 2, draft DCO: *"commence", means, (a) in relation to works seaward of MHWS, the first carrying out of any licensed marine activities authorised by the deemed marine licences, save for operations consisting of ~~offshore site preparation works,~~ pre–construction monitoring surveys approved under the deemed marine licences, and…*

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	Schedules 11 and 12: *"commence" means the first carrying out of any licensed marine activities authorised by this marine licence, save for ~~operations consisting of offshore site preparation works,~~ pre-construction monitoring surveys approved under this licence and "commenced" and "commencement" must be construed accordingly;*
Schedule 11, Part 2, condition 13(6), Schedule 12, condition 14(6) (new numbering): This is an acceptable solution, subject to the provision and review of the wording.	In the draft DCO version 1, as submitted for Deadline 1, the Applicant has added a new provision as below (Schedule 11, Part 2, condition 13(6), Schedule 12, condition 14(6)): *In the event that driven or part-driven pile foundations are proposed to be used, the hammer energy used to drive or part-drive the pile foundations must not exceed 5,000kJ.*
Schedule 11, Part 2, condition 13(6), Schedule 12, condition 14(6) (new numbering): This is mostly acceptable, subject to provision and acceptance of an outline SIP. The wording of the licence conditions must be updated to reflect the inclusion of a SIP and the function the SIP will take. The advantage of the SIP is that it actually requires the applicant to put forward a plan which clearly demonstrates that they are not adversely affecting the site. The current condition effectively says the MMO shouldn't approve if it is not content that there will be no adverse effect on the SAC. The condition also states that the decision is to be based on the construction plan only, while a large part of the information to decide if the works have an acceptable impact will come from a wide range of other documents (construction schedule, construction methodology, MMMP etc). If all this information is collated within the final SIP this makes for an easier post consent process. Additionally a SIP has a timetable of resolution, which for East Anglia Three started a year before construction and Natural England would advise that a similar timetable needs to be included in any outline SIP.	In the draft DCO version 1, as submitted for Deadline 1, the Applicant has added a provision as below to both DMLs (Schedule 11, Part 2, condition 13(5), and Schedule 12, Part 2, condition 14(5)): *In the event that driven or part-driven pile foundations are proposed to be used, the licenced activities, or any phase of those activities must not commence until a Site Integrity Plan which accords with the principles set out in the in principle Hornsea Three Southern North Sea Site of Community Importance Site Integrity Plan has been submitted to the MMO and the MMO is satisfied that where the plan assesses that mitigation is necessary to avoid adversely affecting the integrity (within the meaning of the 2017 Regulations) of the Southern North Sea candidate Special Area of Conservation, it provides for such mitigation, to the extent that harbour porpoise are a protected feature of that site.*
We note that most matters remain unresolved, requiring further clarification. Please refer to table B2 above for detailed comments on the said document.	See the Applicant's response to the detailed comments in table B2 above.
The response does not address Natural England's concerns, it merely repeats the same aggregate figures which we raised concerns about. The figures for all disposal should be broken down into the different types, giving volume and area so that the maximum of each activity is actually recorded on the licence and can be appropriately enforced. This is especially important when you note that we have raised concerns that the licence has less disposal recorded than the Disposal Site Characterisation report considers to be required.	See responses above in relation the apparent discrepancies between the disposal volumes outlined in the draft DCO and Volume 5, Annex 3.2: Dredging and Disposal Site Characterisation of the Environmental Statement (APP-086). The relevant breakdown of disposal material is clearly outlined in Table 2.2 of Volume 5, Annex 3.2: Dredging and Disposal Site Characterisation of the Environmental Statement (APP-086).
Schedule 11, Part 2, condition 13(1)(a), Schedule 12, condition 12(1)(a) (new numbering): This is an acceptable solution, subject to submission and review	In the draft DCO version 1, as submitted for Deadline 1, the Applicant has amended this provision as below (new wording underlined): *to ensure conformity with the description of Work No. 1 and*

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of the amended wording.	*compliance with conditions (i) to (v) above save that where the proposed layout prescribed in the design ~~provided~~ plan under this condition is in accordance with the development principles set out volume 2, chapter 7, and volume 5, annex 7.1 to the environmental statement that the layout shall not require the consent of the MMO ~~shall not be required~~.*
Schedule 11, Part 2, condition 16(2)(a), Schedule 12, Part 2, condition 18(2)(a) (new numbering): Natural England would consider a licence requirement that has been undertaken on most Round 2 and all subsequent developments to be a standard approach. However, the proposed resolution appears acceptable, subject to review and agreement on the final wording.	In the draft DCO version 1, as submitted for Deadline 1, the Applicant has added the provisions as below to both DMLs relating to pre-construction monitoring: Schedule 11: *a high-resolution swath bathymetric survey to include a 100% coverage and a side-scan sonar survey of the parts of the offshore Order limits within which it is proposed to carry out construction works and disposal activities under this licence, to determine the location, extent and composition of any biogenic or geogenic reef features, as set out within the in-principle monitoring plan;* Schedule 12: *a high-resolution swath bathymetric survey to include a 100% coverage and a side-scan sonar survey of the parts of the offshore Order limits within which it is proposed to carry out construction works and disposal activities under this licence. Survey to provide a baseline of the seabed environment and bathymetric conditions against which specific post construction marine process monitoring can be undertaken, as set out within the in-principle monitoring plan;*
Schedule 11, Part 2, Condition 14(1), Schedule 12, Part 2, Condition 15(1) (new numbering): This is an acceptable solution, subject to the submission and review of the updated wording	In the draft DCO version 1, as submitted for Deadline 1, the Applicant has amended this provision as below (new wording underlined): Schedule 11: *Each programme, statement, plan, protocol or scheme required to be approved under condition 13 (save for that required under condition 13(1)(f)) must be submitted for approval at least four months prior to the intended commencement of licensed activities, except where otherwise stated or unless otherwise agreed in writing by the MMO.* Schedule 12: *Each programme, statement, plan, protocol or scheme required to be approved under condition 14 (save for that required under condition 14(1)(f)) must be submitted for approval at least four months prior to the intended commencement of licensed activities, except where otherwise stated or unless otherwise agreed in writing by the MMO.*
Schedule 11, Part 2, Condition 14(1), Schedule 12, Part 2, Condition 15(1) (new numbering):	The Applicant responded to this in their response to Natural England Relevant Representation (RR-097) submitted at deadline 1 and has nothing further to add here.

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Natural England does not consider it appropriate to include a single hard deadline for all pre-construction documentation. Some documents take more resource and effort to review than others, and some documents have significantly higher risks of issue. As stated in our Relevant Representations the four month deadline was originally created for Round 1 projects where the developments were much smaller and the potential for issues with the documentation far less. For example the new SIP document which will likely trigger an HRA process, requiring assessment by the MMO and consultation on that assessment. Natural England is willing to discuss this issue with the applicant to see if an outcome that is beneficial to all can be reached.	
Natural England is willing to work with the applicant to reach agreement on the timing. It should be noted that there is one exception to the provision of monitoring within four months and that is the during construction noise monitoring, which must be submitted six weeks after the monitoring has been conducted. This is a standard timeframe for this monitoring.	The Applicant has revisited and revised the monitoring requirements in both DMLs in the draft DCO submitted for deadline 1. Regarding the timing of the provision of a monitoring report, the Applicant has included a new condition in each DML (as submitted for deadline 1) as follows: Schedule 11: *Any monitoring report compiled in accordance with the monitoring plans provided under conditions17,18 and 19 must be provided to the MMO no later than four months following completion of the monitoring to which it relates.* Schedule 12: *Any monitoring report compiled in accordance with the monitoring plans provided under conditions 18, 19 and 20 must be provided to the MMO no later than four months following completion of the monitoring to which it relates.* On the provision of a noise monitoring, Schedule 11 of the draft DCO submitted for deadline 1 as follows: *The results of the initial noise measurements generated in accordance with condition 18(2)(a) must be provided to the MMO within 6 weeks of the completion of installation of the fourth foundation of each foundation type for the MMO to determine whether any further noise monitoring shall be required.*
Schedule 11, Part 2, Condition 22, Schedule 12, Part 2, Condition 22 (new numbering): This is an acceptable solution, subject to the submission and review of updated DMLs.	In the draft DCO version 1, as submitted for Deadline 1, the Applicant has added the provisions as below to both DMLs: *22—(1) Only when driven or part-driven pile foundations or detonation of explosives are proposed to be used as part of the foundation installation the undertaker must provide the following information to the Marine Noise Registry—* *(a) prior to the commencement of the licenced activities, information on the expected location, start and end dates of impact pile driving/detonation of explosives to satisfy the Marine Noise Registry's Forward Look requirements;* *(b) at six month intervals following the commencement of pile driving/detonation of explosives,*

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	information on the locations and dates of impact pile driving/detonation of explosives to satisfy the Marine Noise Registry's Close Out requirements; *(c) within 12 weeks of completion of impact pile driving/detonation of explosives, information on the locations and dates of impact pile driving/detonation of explosives to satisfy the Marine Noise Registry's Close Out requirements* *(2) The undertaker must notify the MMO of the successful submission of Forward Look or Close Out data pursuant to paragraph (1) above within 7 days of the submission.* *(3) For the purpose of this condition—* *(a) "Marine Noise Registry" means the database developed and maintained by JNCC on behalf of Defra to record the spatial and temporal distribution of impulsive noise generating activities in UK seas;* *(b) "Forward Look" and "Close Out" requirements are as set out in the UK Marine Noise Registry Information.*
Schedule 11, Part 2, Condition 23, Schedule 12, Part 2, Condition 23 (new numbering): This is an acceptable solution, subject to the submission and review of updated DMLs.	In the draft DCO version 1, as submitted for Deadline 1, the Applicant has added the provision as below to both DMLs: *23—(1) Not more than 4 months following completion of the constriction phase of the project, the undertaker shall provide the MMO and the relevant SNCBs with a report setting out details of the cable protection used for the authorised scheme.* *(2) The report shall include the following information—* *(a) location of the cable protection;* *(b) volume of cable protection; and* *(c) any other information relating to the cable protection as agreed between the MMO and the undertaker.*
Throughout Schedules 11 and 12: This is an acceptable solution, subject to the submission and review of updated DMLs.	References to "Natural England" have been amended to refer to the "relevant SNCBs".

Response to Annex C (REP1-211) of Natural England's Written Representation

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Baseline Data Collection and Analysis Methodology - Hierarchical Data Selection Method and Integration of boat-based and aerial datasets	The Applicant has provided a response to this point as part of Appendix 8 of the Applicant's submission to Deadline 1. As part of this clarification note the variability that is likely to occur at Hornsea Three in those months was explored and it was concluded that it was highly unlikely that there would be significant variability at Hornsea Three in these months. The need for and approach to the work presented as part of the meta-analysis was discussed extensively within the Expert Working Group, throughout the Evidence Plan process. The

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	meta-analysis was undertaken to make best use of all the data available for Hornsea Three and to explore the likely variation in the densities of key species during those parts of the year where there were fewer site-specific surveys (i.e. Dec – Mar). It was the Applicant's understanding that, whilst there was discussion about the methods used to analyse data and the relative weight attached to different datasets, the broad approach was considered to be reasonable and sensible to supplement the data available. The Applicant has sought throughout to take on board any suggestions made by Natural England (and others) to improve the analyses, however, at no stage during Evidence Plan consultations was an alternative approach (to the meta-analysis) recommended. Notwithstanding this, the Applicant notes that Natural England have now advised (paragraph 3.16 in Annex C) in their Written Representation for Deadline 1 that densities and population estimates for the four months for which only one year's site specific data has been collected (December to March) place greater weight on the upper confidence limit as part of assessments.
Baseline Data Collection and Analysis Methodology – Adequacy of the Digital Aerial Survey Data collected in 2016/17	It is the Applicant's position that the level of coverage provided by the aerial surveys is appropriate and proportionate when compared to the coverage achieved during surveys used to support the applications for other offshore wind farms. The level of precision achieved by the surveys is considered to be acceptable for assessment purposes. Further to this there is no agreed level of precision for any offshore surveys. It was agreed in the EWG meeting of 27th February 2018 that adequate site-specific survey data had been obtained for the months April – November and that discussions relating to the need for further analysis of other datasets should focus on the months December to March (see Section D.8 of Appendix D of Annex 1 – Evidence Plan of the Consultation Report (APP-035) . In addition, the survey methodology and analysis methodology for the data collected was presented to the EWG as part of the EWG meeting undertaken on the 13th April 2016. The issue of survey coverage was explicitly discussed and it was agreed that, in light of the information available from previous surveys, 10% coverage was adequate. As a conclusion to the discussion on survey methodology in that EWG meeting DONG Energy (now Orsted) asked if Natural England thought that any changes to the survey methodology were required. Natural England stated that they were happy with the proposed survey methodology but highlighted the risk associated with collecting less than two years of site-specific survey data. The Applicant has provided information on the results of surveys throughout the pre-application stage, presenting data from the site-specific aerial surveys at subsequent EWG meetings, as part of the meta-analysis process, through Section 42 consultation within the Preliminary Environmental Information and within a separate draft Environmental Statement. At no stage were objections to the survey methodology raised. It is worth noting that there is no guidance from Natural England

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	as to the level of precision required for survey data. The Applicant is not aware of Natural England having ever requested a defined level of precision for aerial surveys of an offshore wind farm site. Natural England's request for additional data analysis are unnecessary.
Baseline Data Collection and Analysis Methodology – Method for calculating confidence intervals around mean density estimates	The Applicant notes this comment. The Applicant believes that the approach applied is appropriate and precautionary but would be open to further engagement with Natural England if they are able to recommend or provide a valid alternative approach which is demonstrably better in capturing uncertainty and variability than the method used by the Applicant.
Collision Risk Modelling (CRM) – Seabird CRM model Options – use of the Extended model	Collision risk estimates used in the assessments presented in Volume 2, Chapter 5: Offshore Ornithology (APP-065) for the Project alone are presented in Table 5.26 and paragraphs 5.11.2.106, 5.11.2.110 and 5.11.2.113 for gannet, Table 5.27 and paragraphs 5.11.2.149, 5.11.2.152 and 5.11.2.155 for kittiwake, Table 5.28 and paragraphs 5.11.2.171, 5.11.2.176 and 5.11.2.181 for lesser black-backed gull and Table 5.29 and paragraphs 5.11.2.189 and 5.11.2.193 for great black-backed gull. Collision risk estimates used in the assessments presented in the RIAA (APP-051) for the Project alone are presented in Table 7.13 and paragraph 7.5.2.33 for gannet and Table 7.5.2.51 and paragraph 7.5.2.52 for kittiwake. Collision risk estimates from Options 1, 2 and 3 are presented in all of these tables and paragraphs, with associated assessments based on the range of collision risk estimates predicted using all of these Options. Collision risk modelling presented for migratory species in Volume 2, Chapter 5: Offshore Ornithology (APP-065) uses outputs from Option 2 and Option 3 with assessments based on the range of collision risk estimates predicted for these species The cumulative and in-combination assessments undertaken for Hornsea Three are based on Extended model outputs where available. The Applicant has however produced a clarification note (as submitted at Appendix 7 to the Applicant's response to Deadline 1) that provides Natural England with cumulative and in-combination numbers calculated using only outputs from the Basic model (Options 1 or 2). The note concludes that the difference between the two approaches is not of a magnitude large enough to alter the conclusions reached in Volume 2, Chapter 5: Offshore Ornithology (APP-065) or the RIAA (APP-051). It is the Applicant's position that the presentation and incorporation of collision risk estimates from Option 3 of the Band model is appropriate. The presentation of outputs from the Extended model is also intended to futureproof projects because as our understanding of collision risk continues to improve there may come a point where the SNCBs are able to support the use of the Extended model and these outputs will be required for cumulative and in-combination assessments undertaken for future projects.

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Collision Risk Modelling (CRM) – Seabird CRM Model Options - the Basic model	Natural England has stated that they do not think it is appropriate to use Option 1 for the assessments for Hornsea Three. The Applicant wishes to draw the Examining Authority's attention to the discussions in relation to the use of the flight height data from historic boat-based data that occurred as part of the application and examination process for Hornsea Project Two. The discussions at Hornsea Project Two involved identical issues to those raised by Natural England in their Written Representations. In order to address these the Hornsea Project Two applicant provided Option 1 collision risk estimates that were calculated using flight height data from a whole flight height band (e.g. 22.5 to 27.5 m) and provided collision risk estimates calculated using an uncertainty metric which represented the flight height bands covering the rotor swept area plus the height band below the lower rotor tip height (for example if the lower rotor height was within the 27.5 to 32.5 m height band the uncertainty metric also incorporated data from the 22.5 to 27.5 m height band). By providing PCH values calculated using this approach the Applicant and Natural England were able to agree to the use of Option 1 for kittiwake (see the Memorandum of Understanding between Natural England and the Hornsea Project Two applicant submitted at Deadline 7 of the Hornsea Project Two examination and Natural England's submission for Deadline 7 which provides a figure of 14 collisions calculated using Option 1 that informs their assessments). The approach to calculating a PCH value for use in Option 1 applied at Hornsea Three follows the approach accepted by Natural England during the examination of Hornsea Project Two (see Section 1.3.4 of Volume 5, Annex 5.3: Collision Risk Modelling (APP-109)). There is no new evidence, to the best of our knowledge, to suggest that this approach is no longer valid or would not also be relevant and appropriate in this case. It should be noted that there has been no post-processing of the boat-based data in order to create height bands coincident with the rotor heights proposed for use at Hornsea Three with this previously having been an issue for Natural England. Natural England has also queried the use of site-specific flight height data from only Hornsea Three plus a 4 km buffer. It is considered preferable to obtain flight height data from as close to the proposed wind farm area as possible. In this case, a sizeable sample of flight heights is available for the Hornsea Three area: in excess of 100 observations, which Natural England has previously advised is a reasonable sample size on which to base site-specific PCH estimates (Natural England, 2013(Written Representations of Natural England for Walney Extension)). As a consequence, there is no need to utilise data from beyond Hornsea Three plus a 4 km buffer. The Applicant has submitted a clarification note at Deadline II (Appendix 5) which presents the results of Lidar surveys conducted across Hornsea Three. The use of Lidar represents the most accurate method for collecting bird flight heights and has been validated as part of a Marine Scotland funded study (Cook *et al.,* 2018), which is included at Appendix 5 of the Applicant's submission at Deadline II. The results of these

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	surveys show that the flight heights recorded during boat-based surveys are representative of flight behaviour of birds at Hornsea Three and therefore indicate that the use of collision risk estimates calculated using Option 2 significantly over-estimate the collision risk posed to birds at Hornsea Three. Much greater confidence should therefore be placed in the collision risk estimates calculated using Option 1.
Collision risk modelling – Nocturnal Activity Factors in CRM	The Applicant has submitted a clarification note at Deadline I as submitted at Appendix 10 that updates the collision risk modelling undertaken for the project utilising the nocturnal activity factors derived by Furness *et al.* (2018) and those presented in the Norfolk Vanguard planning application which are yet to be published (Furness, unpublished). The Applicant also notes that Natural England agree that recent evidence shows that the historic nocturnal activity factors will provide an over-estimate of collision risk for certain species. The aim of Furness *et al.* (2018) was to provide nocturnal activity factors for gannet that could be used in the Band (2012) CRM. The report therefore takes account of all of the issues raised by Natural England in their Written Representation (i.e. length of day and night, different definitions of twilight and dawn). It is worth noting that the data used to inform the nocturnal activity factor score for gannet in Garthe and Hüppop (2004) is incorporated into the analysis presented in Furness *et al.* (2018), the issues raised by Natural England in their Written Representations therefore apply equally to the scores derived by Garthe and Hüppop (2004) and the quantification of these scores by Band (2012). The Applicant has provided Furness *et al.* (2018) as part of their Deadline I submission but would like to highlights few relevant sections from that peer-reviewed paper. In relation to the quantification of the nocturnal activity scores in Garthe and Hüppop by Band (2012): "*These scores* [from Garthe and Hüppop, 2004] *simply indicated that bird species that scored higher were likely to show more nocturnal flight activity than bird species that scored lower on the scale."* *"It is important to note that these suggested percentages* [from Band (2012)] *were not based on evidence. It is also clear from Garthe and Hüppop (2004) that many of the scores for other seabird sensitivity metrics that they assigned were categorical rather than linear".* In relation to definitions of day and night: "*Garthe and Hüppop (2004) did not provide an explicit definition of day and night."* Based on current best available evidence, an understanding of the derivation of the nocturnal activity factor scores by Garthe and Hüppop (2004) and the subsequent non-evidence based quantification of these scores by Band (2012), the Applicant considers that the upper nocturnal activity factors in the range recommended by Natural England for gannet and kittiwake provide for a false accounting of uncertainty and in fact represent

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	a non-evidence based over-estimation of the nocturnal activity of gannet and kittiwake.
Collision risk modelling – Bird Densities used in Collision Risk Modelling	For the reasons stated above the Applicant does not consider it necessary to analyse any additional data associated with the four cameras used for digital aerial surveys. However the Applicant notes and is considering Natural England's suggestion to use the upper confidence limit to demonstrate collision risk estimates are not under-estimated. In order to close out the baseline data issues the Applicant seeks direct engagement from Natural England to ensure that both parties have a common understanding of how best to approach using upper confidence limits for the months December to March.
Collision risk modelling – Presenting Uncertainty in Collision Risk Predictions	The Applicant has calculated uncertainty and variability associated with relevant parameters of collision risk modelling using a standard approach that has been employed at previous consented offshore wind farms (e.g. Hornsea Project Two). The Applicant is pleased that Natural England acknowledge (paragraph 3.23 of Annex C) the Applicant has considered variability in bird densities, avoidance rates and flight heights and presented collision risk estimates incorporating various measures of uncertainty in Volume 5, Annex 5.3: Collision Risk Modelling (APP-109). The points raised in relation to data for December – March and nocturnal activity factors are addressed in responses above. The collision risk estimates obtained by using these measures of uncertainty have been referred to in a statistically valid way (i.e. through reference to the confidence that can be ascribed to the best estimate values) in Volume 2, Chapter 5: Offshore Ornithology (APP-065) (see paragraphs 5.11.2.107, 5.11.2.111, 5.11.2.114 for gannet, paragraphs 5.11.2.150, 5.11.2.153 and 5.11.2.156 for kittiwake, paragraphs 5.11.2.173, 5.11.2.177, 5.11.2.182 for lesser black-backed gull and paragraphs 5.11.2.190 and 5.11.2.194 for great black-backed gull) and in the RIAA (APP-051) see paragraph 7.5.2.34 for gannet and paragraph 7.5.2.52 for kittiwake). It is considered that the collision risk estimates presented in Volume 5, Annex 5.3:Collision Risk Modelling (APP-109) and discussed in the assessments produced for relevant species therefore cover all of the issues raised by Natural England in their Written Representation.
Collision Risk Modelling – Avoidance rates	We are pleased that Natural England acknowledge (paragraph 3.23 of Annex C) that the Applicant has provided collision risk estimates using a range of avoidance rates for each species (plus standard deviations) in Volume 5, Annex 5.3:Collision Risk Modelling (APP-109). In addition the Applicant would like to highlight the conclusions presented in Cook *et al.* (2018) which provides further support to the use of a 99.2% avoidance rate for kittiwake (i.e., the avoidance rate used in the assessments produced by the Applicant) and suggests higher avoidance rates should be applied for other species (e.g. lesser black-backed gull) Cook *et al.* (2018) was conducted as part of a project for Marine Scotland and was reviewed by a project steering group the members of

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	which include the UK SNCBs.
Assessment of Displacement Impacts – Population estimates	The Applicant's response to Natural England's comments in relation to population estimates is presented above in this table. In order to close out the baseline data issues the Applicant seeks direct engagement from Natural England to ensure that both parties have a common understanding of how best to approach using upper confidence limits for the months December to March.
Assessment of Displacement Impacts – Seasonal definitions	The Applicant's response in relation to the issues raised by Natural England is presented below
Assessment of Displacement Impacts – Apportioning	The Applicant's response in relation to the issues raised by Natural England is presented below in this table
Assessment of Displacement Impacts – Combination of seasonal impacts EIA/RIAA	The Applicant does not agree with the combining of seasonal impacts as this is likely to result in an over-estimation of any impact. Notwithstanding this the Applicant has presented information throughout the application that would allow Natural England to see the effect of combining these impacts on relevant populations if they wish to do so (e.g. Volume 5, Annex 5.2: Analysis of Displacement Impacts on Seabirds (APP-108).
Assessment of Displacement Impacts – Lack of confidence intervals	The Applicant's approach to assessing displacement impacts follows the Joint SNCB1 Interim Displacement Advice Note (JNCC *et al.,* 2017). This guidance advises the use of seasonal mean-peak population estimates with the guidance stating that the use of mean-peak population estimates *"…allows for year-to-year variation in the precise time (and magnitude) of peak abundance estimates to be taken into account in arriving at a mean peak population estimate."* The Applicant's approach to assessing displacement impacts in relation to capturing uncertainty therefore follows SNCB guidance. The approach taken by Natural England in past applications to dealing with confidence intervals for use in displacement analyses is not statistically valid and does not follow the guidance provided in JNCC *et al.* (2017) for which Natural England were a joint author.
Assessment of Displacement Impacts - Mortality/displacement levels	We are pleased that Natural England acknowledge displacement levels and mortality do vary at different times of the year for different species. Therefore, an approach that does not recognise that will result in over-estimation of impact. The Applicant has presented displacement matrices that incorporate a range of displacement and mortality rates for all relevant species in RIAA Annex 2: Additional SPA Screening (APP-053) as Natural England recommend. The Applicant considers that the literature review conducted (see paragraphs 5.9.2.15 to 5.9.2.39 in Volume 2, Chapter 5: Offshore Ornithology (APP-065)) in order to identify appropriate displacement and mortality rates includes an appropriate level of precaution to ensure that displacement impacts are not underestimated.

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Assessment of Displacement Impacts – Inclusion of immature impacts	The Applicant has provided consideration of the impact on immature birds in paragraphs 7.7.2.42 to 7.7.2.57 in the RIAA (APP-051) and paragraphs 5.13.3.28 to 5.13.3.58 and 5.13.3.59 to 5.13.3.81 in Volume 2, Chapter 5: Offshore Ornithology (APP-065). In order to close out this issue the Applicant seeks direct engagement from Natural England to ensure that both parties have a common understanding of how best to approach this issue
Assessment of Displacement Impacts qualitative cumulative and in-combination assessments	The impact of displacement on gannet and fulmar is considered to be trivial (see project alone assessments and paragraph 5.13.3.7 in Volume 2, Chapter 5: Offshore Ornithology). It was therefore considered that quantitative assessment for these species was not necessary. It is noted that Natural England is not suggesting a negligible level of impact (project alone) necessitates a quantitative assessment, rather their concern relates to confidence in that conclusion, which is addressed in answers above.
Assessment of Displacement Impacts – Data for cumulative and in-combination assessments for auk species	The cumulative and in-combination impacts included in the assessments conducted for guillemot, razorbill and puffin are consistent with those presented at Hornsea Project Two. Natural England did not object to that approach in that Application.
Assessment of Displacement Impacts – Combining effects to assess the overall impact to a population	The Applicant considers that combining displacement and collision impacts will lead to an over-estimation of the overall impact on relevant species. This is due to the analytical techniques used to derive displacement mortality and collision risk modelling and the complicated relationship between these two impacts. It is also likely that the precaution inherent in the assessments associated with collision risk and displacement would be compounded if such additive assessments are conducted. Notwithstanding this issue, information is presented throughout the assessments conducted that would allow Natural England to conduct a combined assessment if they wish to do so.
Assessment of Cumulative and In-combination Effects;	The Applicant has submitted a clarification note at Deadline I (as submitted at Appendix 7) that provides cumulative and in-combination collision risk totals for each relevant project on a seasonal basis using collision risk estimates calculated using the Basic Band model only. Consideration of correction factors for nocturnal activity factors and as-built scenarios as presented in Volume 2, Chapter 5: Offshore Ornithology (APP-065) and the RIAA (APP-051) were provided to illustrate the uncertainty and inherent over-precaution associated with cumulative and in-combination totals as a result of these two aspects of the cumulative/in-combination assessments. The Applicant refers Natural England to the Applicant's response to the Examining Authorities question Q1.2.81. The proportional changes applied by the Applicant to account for differences between assessed and consented turbine scenarios are those that have been previously applied and agreed with Natural England as part of the application and examination process at Hornsea Project Two (see for example Appendix N

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	and P of the Hornsea Project Two applicant's submission at Deadline 2a of the examination of Hornsea Project Two and Appendix 2 and 3 of Natural England's submission at Deadline 3 of the Hornsea Project Two examination). Continuing to use the worst case predictions for these projects, where it is now known that the worst case assumption will not arise, will lead to a demonstrable and avoidable over-estimation of cumulative and in-combination impacts. The approach that has been applied by the Applicant for the Hornsea Three assessments and in previous assessments by Natural England is transparent and precautionary, as it is still likely to over-estimate the actual impact arising from the projects included. This is discussed further in the Appendix 4 to the Applicant's submission at Deadline 1. There is a direct relationship between turbine number and collision risk (i.e. a 50% reduction in turbine number will lead to a 50% reduction in collision risk when using the same turbine). The assumption is therefore made that the consented scenario consists of the same turbine model as the assessed scenario albeit with fewer turbines which is true for some of the projects for which a reduction has been applied. For other projects it may be the case that the turbine scenario will have been changed to a larger turbine capacity and this will have an associated lower collision risk (which may in some circumstances be the reason for changing the design) however, assuming that the turbine scenario has not changed (i.e., if a 3.6 MW turbine was assessed it is assumed a 3.6 MW turbine will be installed) ensures that the worst case scenario for collision risk, at least in terms of the cumulative and in-combination assessments for Hornsea Three, is assessed. This is discussed further in the Appendix 4 to the Applicant's submission at Deadline 1. Appendix 4 of the Applicant's submission to Deadline 1 provides an update to the consideration of changes to assessed turbine scenarios that have occurred at many projects. The Applicant has identified those projects at which correction factors can be applied (based on parameterisation of the Band model) taking into account legally secure changes in turbine scenarios.
Population Modelling Approaches and Population Impacts;	The Applicant refers Natural England to Appendix 9 to the Applicant's submission at Deadline 1 which provides PVA outputs incorporating a matched runs approach and a 35 year project lifetime. The Applicant also refers Natural England to paragraphs 5.13.3.28 to 5.13.3.58 and 5.13.3.59 to 5.13.3.81 in Volume 2, Chapter 5: Offshore Ornithology (APP-065) and paragraphs 7.5.2.69 to 7.5.2.89 and 7.5.2.90 to 7.5.2.105 in the RIAA (APP-051) which include consideration of immature impacts for relevant species. The Applicant would additionally like to draw the attention of the Examining Authority to the discussions in relation to the population size of kittiwake at Flamborough Head and Bempton Cliffs SPA that formed part of the examination for Hornsea Project Two and Hornsea Project One. The Applicant would also like to draw the attention of the Examining Authority to Coulson (2011) which provides an abundance of evidence as to why the

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	citation population for Flamborough and Bempton Cliffs SPA is an over-estimate (specifically page 239-240). Finally the Applicant would like to draw the attention of the Examining Authority to the conclusions drawn by the examining authority for the Hornsea Project One offshore wind farm in relation to this matter (paragraph 5.102 of the Examining Authorities Recommendation Report and paragraph 6.43 in the Secretary of State's HRA report) which state: *"Nonetheless the ExA comes to the conclusion on the basis of the evidence and arguments put before it that Dr Coulson's thesis is more persuasive to a significant degree. At the end of the examination the ExA therefore had very considerable doubt as to the accuracy of apparent fluctuations in the numbers of kittiwakes at the Flamborough colony, and felt unable to give any significant weight to them."*
Phenology, Population Scales and Apportioning to individual SPAs; - Data used to inform breeding season definitions.	The Applicant notes that Natural England agrees with the seasonal definitions defined for guillemot and razorbill (see Section D.8 of Appendix D to Annex 1: Evidence Plan of the Consultation Report (APP-035)). The Applicant would draw the Examining Authorities attention to the final position of Natural England at Hornsea Project Two in relation to the appropriate seasons to use for relevant species as presented in Appendix 3 of Natural England's submission at Deadline 3 of the Hornsea Project Two examination (gannet) and paragraphs 3.47 to 3.51 and resulting conclusion in Natural England's submission to Deadline 5 of the examination of Hornsea Project Two (kittiwake). The Applicant would also draw the Examining Authorities attention to the agreements reached as part of the Evidence Plan in relation to the seasonal definitions for kittiwake (see Section D.8 of Appendix D to Annex 1: Evidence Plan of the Consultation Report (APP-035) which outlines the EWG's agreement on the extent of the post-breeding season for kittiwake (August to December)). The Applicant welcomes the evidence presented in Natural England's Written Representation. This evidence has not previously been made available or drawn to the Applicant's attention to enable this information to be incorporated into the assessments conducted for relevant species. The Applicant requests that Natural England provide any communications that Natural England have had with the colony managers at RSPB Bempton Cliffs in order that the Applicant can examine the evidence presented.
Phenology, Population Scales and Apportioning to individual SPAs - Breeding season definitions and apportioning	Despite Natural England suggesting that there are differences in relation to the seasonal extents defined, the definitions defined by the Applicant and Natural England account for very different aspects of assessment. The seasonal definitions defined by the Applicant are not intended to reflect the presence of each species at the breeding colony, rather they inform how to judge whether birds observed at the proposed wind farm site relate to the breeding colony (which is located 150km to the west of Hornsea Three). The breeding seasons defined by the Applicant therefore represent the periods during which time it can be

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	assumed that adult breeding birds present at Hornsea Three originate, solely, from FFC pSPA. The population present at Hornsea Three in those months not included in the Applicant's breeding seasons but included in Natural England's breeding seasons is very different to that that would occur in the 'core breeding season' as migratory birds will be present. Therefore it is considered that a different apportioning methodology should be applied. The Applicant has previously suggested (see Section D.5 of Appendix D to the Evidence Plan) that 'shoulder periods', representing those months during which the population of a species at Hornsea Three is composed of birds from multiple populations (as alluded to by Natural England in their Written Representation), be used to indicate those months when there is an overlap between breeding birds from a colony and migratory birds moving through Hornsea Three. The Applicant would welcome further engagement with Natural England to discuss the approach to apportioning in those months outside of the breeding season defined by the Applicant but within the breeding season as defined by Natural England.
Phenology, Population Scales and Apportioning to individual SPAs – Age class data	The Applicant provided the age class data requested by Natural England in Appendix 3 to the Applicant's submission to Deadline I.
Phenology, Population Scales and Apportioning to individual SPAs – Survey Platform and Coverage Issues	The Applicant notes this comment and at this stage has nothing to add to that set out in previous sections above.
Phenology, Population Scales and Apportioning to individual SPAs – Approach to apportioning for kittiwake and puffin	The assessment undertaken for Hornsea Three sought to make as much use of agreed evidence as possible. This is proportionate and in keeping with the evidence plan process. In this spirit, agreements reached about assumptions and evidence in previous projects (and particularly the relatively recently consented Hornsea Two project) have been relied upon where relevant and in the absence of any better new evidence justifying an alternative approach. The Applicant would therefore like to draw the Examining Authorities attention to the agreement in relation to apportioning for kittiwake reached with Natural England at Hornsea Project Two (see paragraphs 3.52 to 3.58 and resulting conclusion in Natural England's submission to Deadline 5 of the examination of Hornsea Project Two). These paragraphs indicate that Natural England were in agreement with the approach applied at Hornsea Project Two with this approach subsequently used as part of the apportioning approach at Hornsea Three. The Applicant is unaware of any new evidence that indicates that a different assumption is now more appropriate and maintains that the approach remains valid and is appropriate for use at Hornsea Three for both kittiwake and puffin. In fact, insofar as there is further relevant evidence, it supports the approach taken by the Applicant. Cleasby *et al.* (2018) (included as Appendix 42 to the Applicant's Deadline 1 submission), which is based on tracking data of kittiwake from the FFC SPA colony, shows limited utilisation of the Hornsea Three area by kittiwake, the Proceedings of the International Seabird Conference at which the RSPB presented at analysis of tracking data collected at FFC pSPA which again indicates

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	limited usage of the Hornsea Three area by kittiwakes from the pSPA and Wischnewski *et al.* (2017) which is the report associated with this presentation (included as Appendix 7 to the Applicant's submission at Deadline 2). It should be noted that the apportioning approach applied by the Applicant is not solely based on age class data. The Applicant also presented various information sources (including peer-reviewed literature) that suggest that the apportioning value calculated is appropriate (see paragraphs 1.4.3.11 to 1.4.3.12 in RIAA Annex 3: Phenology, connectivity and apportioning for features of FFC pSPA (APP-054)).
Phenology, Population Scales and Apportioning to individual SPAs – Apportioning immature impacts within the breeding season	The Applicant has provided an assessment of immature impacts in in paragraphs 7.7.2.42 to 7.7.2.57 in the RIAA (APP-051) and paragraphs 5.13.3.28 to 5.13.3.58 and 5.13.3.59 to 5.13.3.81 in Volume 2, Chapter 5: Offshore Ornithology (APP-065). for guillemot and razorbill. Impacts on immature gannet and kittiwake accounted for as part of the PVA modelling approach conducted for these species. Quantification of these impacts is difficult due to the reasons outlined by the Applicant in the paragraphs referenced above however, the Applicant would welcome engagement with Natural England to discuss the quantification of this approach.
HRA Screening and LSE conclusions;	The Applicant considers that the suite of sites and associated species is complete. The Applicant requests that Natural England provide a list of those sites and associated species that they believe should be incorporated into the RIAA.
Habitats Regulations Assessment (HRA);	The Applicant has no comment at this stage on this section of the response. The Applicant has addressed the specific issues and uncertainties suggested by Natural England in preceding responses set out in the sections above
Environmental Impact Assessment (EIA);	The approach to identifying VORs was discussed and agreed during the Evidence Plan process. The results of initial assessment and the proposed VORs for inclusion in EIA were consulted upon during the pre-application period. Although herring gull was not identified in that process or during consultation, the Applicant has provided collision risk modelling for herring gull in Appendix 12 of the Applicant's response to Deadline I. The conclusion of Appendix 12, is that there is no indication of a significant impact on this species. Natural England do not identify the exclusion of any species (other than herring gull) as of particular concern (their words), so in the absence of justification for particular concerns in relation to any other species, the Applicant considers that Natural England's points have been addressed. The Applicant would note that the approach taken to the impact assessment has been adopted over several offshore wind farm projects (and in other industries) in recent years and has been found to be acceptable by regulators, nature conservation bodies and other stakeholders, including Natural England.
Inaccurate and missing information and data presentation in	The Applicant does not believe that any apparent discrepancies

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Application documentation;	and errors highlighted by Natural England materially affect the assessments conducted by the Applicant. Natural England has highlighted errors that occur once in the documentation with multiple other sources providing the correct information. Many aspects of the information requested by Natural England have already been provided as part of the application documentation or as part of clarification notes submitted at Deadline I. In the interests of proportionality and to allow appropriate focus on and prioritisation of resolution of key outstanding issues, the Applicant seeks further engagement with Natural England to identify whether and the extent to which the remaining requested data is essential for Natural England to form conclusions in relation to the assessments conducted for each species.
Treatment of uncertainty in impact assessments	The Applicant has outlined where uncertainty has been factored into assessments in preceding comments, in the Appendices 4, 7, 8 and 10 to the Applicant's submission at Deadline 1 .and throughout APP-065, APP-107, APP-108, APP-109, APP-051 and APP-054.
Migratory Bird Analysis.	The Applicant notes that Natural England do not consider that changes to the migratory bird collision risk approach would fundamentally alter the conclusions reached in the application. The approach to migratory bird analysis (both for seabird and migratory waterfowl) is consistent with that produced for previous projects). The suite of species for both migratory seabirds and migratory waterfowl has previously been accepted by Natural England (see Appendix B and Appendix C of Volume 5, Annex 5.3: Collision Risk Modelling (APP-109)) The Applicant has considered the collision risk on migratory seabirds in relation to relevant SPAs in RIAA Annex 2 – Additional Special Protection Areas Screening Exercise (APP-053). As less than one collision was predicted for all four of the migratory species incorporated into the migratory collision risk exercise it was considered that there would be no LSE on these species as features at relevant SPAs.

Response to Annex D4 (REP1-217) of Natural England's Written Representation

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2.1. We do not believe that The Applicant has either provided enough evidence for the characterisation of the cable corridor as it passes through the site; the assessment of impact to protected features, or site integrity for the North Norfolk Sandbanks and Saturn Reef (NNSSR) SAC. As such, we cannot agree that the	With respect to the comment regarding the evidence for the characterisation of the offshore cable corridor as it passes through the North Norfolk Sandbanks and Saturn Reef Special Area of Conservation (SAC), the Applicant would highlight that the sampling strategy and coverage of sampling locations within the offshore cable corridor was agreed with the Benthic Ecology, Fish and Shellfish Ecology and Marine Processes Expert Working Group (EWG) at a meeting on 1 February 2017 (see Appendix C.5 of Annex 1: Evidence Plan; APP-035). Furthermore, the benthic sampling strategy was agreed on the basis of the offshore cable corridor route as presented for the Preliminary Environmental Information Report (PEIR) which had a substantially longer route through the North Norfolk Sandbanks and Saturn Reef SAC

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project is unlikely to have any 'significant effect' on features or Adverse Effect on Integrity of the designated site.	than the final DCO submission. Additionally, as outlined in paragraph 2.3.1.2 of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement (APP-102), data from JNCC surveys undertaken within the North Norfolk Sandbanks and Saturn Reef SAC, the Humber Regional Environmental Characterisation (REC) and data acquired in the Southern North Sea Synthesis Benthic Survey, commissioned by Cefas, were also drawn upon to characterise the offshore cable corridor within the site. During the pre-application phase, the Applicant discussed the gaps in the desktop data coverage for the North Norfolk Sandbanks and Saturn Reef SAC with Natural England and JNCC through the EWG including through the provision of a Evidence Plan Position Paper supplied to Natural England and JNCC in advance of the EWG meeting on 1 February 2017. Through this Position Paper and through discussions at the meeting, the Applicant agreed the approach to focus the site-specific sampling on areas where data was lacking or data coverage was poor. Noting Natural England's points raised within Annex D4 of its Written Representation (REP1-217) with regard to the benthic analysis (discussed below), the Applicant highlights to the Ex.A that the benthic subtidal biotopes identified within the part of the Hornsea Three offshore cable corridor coinciding with the North Norfolk Sandbanks and Saturn Reef SAC were either very similar or identical to those identified by JNCC's own data (Jenkins et al., 2015; the NcirBat biotope in sandy sediments and the SspiMx biotope on mixed sediments). The biotopes identified from the Hornsea Three site-specific characterisation surveys are also consistent with the numerous other regional studies of the area as listed above and in paragraph 2.3.1.2 of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement. As such, the Applicant's is confident that the characterisation of the offshore cable corridor within the North Norfolk Sandbanks and Saturn Reef SAC is robust for the purposes of the EIA and RIAA. With respect to risks to qualifying features of the SAC and conclusions with respect to adverse effects on integrity, see the Applicant's response to section 3 of Natural England's Written Response below.
3. Sandbanks - Adverse effect on sandbanks feature	
3.1: JNCC considers that the site boundary delineates the sandbank feature, supported by the original Site Assessment Document (JNCC, 2010) and further validated by recent biological community analysis (Parry et al., 2015).	The Applicant has provided a robust assessment of the effects of Hornsea Three on the features (and their relevant conservation objectives, attributes and targets) of the North Norfolk Sandbanks and Saturn Reef SAC, with the conclusion of no adverse effect on integrity. Since the DCO application, the Applicant has affirmed a commitment to accurate reporting of locations and volumes of both sandwave clearance and cable protection (as required by Schedule 11, Conditions 11 and 23 (generation assets DML) and Schedule 12, Conditions 12 and 23 (transmission assets DML) of the DCO Version 1, submitted for Deadline 1). The Applicant has also updated the In Principle Monitoring Plan (REP1-180) to include pre and post construction monitoring of areas of the seabed affected by sandwave clearance and boulder clearance. These commitments are in line with JNCC's Supplementary Advice on Conservation Objectives (SACO) for the SAC which highlights the need for "longer term monitoring and access to better information taking place within the site'. The Applicant notes the JNCC's comments regarding risks to the Annex I sandbank feature of the North Norfolk Sandbanks and Saturn Reef SAC and is willing to work with JNCC to identify any further mitigation measures necessary to minimise risks to these features. The Applicant is actively seeking a meeting with both Natural England and JNCC discuss these issues.
3.2: Based on our current understanding, JNCC do not consider it likely that human activities taking place within the site have the potential to permanently impact on the large-scale topography of the North Norfolk sandbanks. They could, however, have an impact on the other variables that help define the extent and distribution of a sandbank, namely sediment composition and biological assemblages. Of note for the industrial activities taking place	

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within the site are operations associated with the deposition of material (e.g. rock dump), or other alteration of surface sediment (e.g. drill cuttings and cabling operations), that are likely to lead to a persistent change to substrate which is not suitable habitat for sandbank communities.	
3.3: As such, some of the sandbank's extent and distribution is lost, in that there are areas present within the site that no longer represent sandbank feature, as defined by sediment composition and/or biological communities, because the substrate has been changed. We believe that there has been physical change in sediment composition as a result of industrial activity in the site, but it is unclear what impact this may have on overall sediment composition and distribution. Furthermore, due to lack of evidence about deposits present within the site (i.e. not based on anticipated worst case scenario estimates), it is currently not possible to quantify the loss of extent.	
3.4: NB: The further clarification notes relating to cable protection and sandwave levelling provided by the Applicant to Natural England on 9th October 2018 referenced Dutch studies that demonstrated that there were on changes to biological communities from the deposition of material. Therefore until we have peer reviewed these papers our advice remains unchanged.	
3.5: Our latest view on condition is that the sandbank feature is in unfavourable condition and needs to be restored to favourable condition. Restoration of the feature requires an overall reduction, or removal, of pressures associated with human activities that cause impacts to the sandbanks' extent and distribution, delineated by both substratum and biological communities. As such, any human	

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activities which can cause pressures resulting in changes to substratum or biological communities to the sandbank feature may present a risk to the site's restoration.	
3.6: We note that there is no expectation that The Applicant should demonstrate recovery of the site. Recovery is an objective for all sectors placing pressure on the site, including oil and gas, renewables, aggregates and fisheries. We do, however, expect The Applicant to demonstrate the risk levels that they believe their proposed operations will present to the restoration of the extent and distribution of the sandbank feature. We note that The Applicant may find our discussion of mitigation below helpful in this. As a minimum, this would be to demonstrate that proposed activities will be mitigated to not impede restoration, i.e. that activities will not increase the site's exposure to damaging pressures, particularly in regard to changes in extent and distribution of substratum and biological communities.	
3.7: We note the Applicant's conclusion of "high confidence that the seabed will recover to a new natural equilibrium state within a timescale of months to years." We would suggest that approaching a new equilibrium may not be in accord with restoration of the site, if that new equilibrium is outwith the sediment composition or biological communities expected from the designated feature.	This statement is made in paragraph 1.11.5.9 of Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061). The new equilibrium refers to the recovered sandwave morphology (the detailed position of the crest and cross section shape), which may or may not be identical to that immediately prior to levelling. The recovered feature is naturally formed and so will otherwise function in a normal and natural manner. Sandwaves are an accumulation of locally available sediments. Sediment comprising the feature will also be both continuously exchanged with the surrounding seabed and internally mixed by sediment transport and migration of the feature. Therefore, the recovered feature is not expected to have a meaningfully different sediment composition (seabed form and function) to that of the nearby unaffected sandwaves or surrounding seabed (other than any normally occurring differences or variance due to natural processes).
3.8: We note that in the Cable protection clarification note (dated 9th October 2018) the Applicant discusses what 'natural conditions' exist in the North Sea in relation to the amounts of cobble-pebble-boulders that used to be in the North Sea vs. amounts of rock dump proposed to be added. We do	The Applicant would note that Natural England and JNCC have mis-interpreted this section of the Cable Protection Clarification Note presented at Appendix 6 of the Applicants response to Deadline 1 (REP1-138).The Applicant has not sought to use this information as an argument for the addition of cable protection within the SAC. Rather, this information was included to provide context for the proposed activities and to demonstrate that natural hard substrate and therefore benthic species associated with hard substrate are not unusual in this part of the North Sea.

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not consider this to be a valid or appropriate argument for the addition of rock dump / stabilisation material into NNSSR.	
3.9: Conservation objectives must be considered against the total impact, rather than individual impacts split by different sections of the project lifecycle, as is currently the case in the application. We currently cannot appropriately assess total impact including all remedial work during O&M with the information provided, which is highlighted in our response to the first set of examiners written questions	The Applicant is in agreement that impacts to Annex I features of the North Norfolk Sandbanks and Saturn Reef SAC associated with cable installation must be considered across the lifetime of Hornsea Three and would refer the Ex.A to their response to Ex.A question Q1.2.103 presented at Appendix 17 to the Applicant's response to Deadline 1 (REP1-178) where this assessment is detailed. This demonstrates that the majority of impacts associated with cable installation and maintenance over the assessed 35 year design life of Hornsea Three, to Annex I features of the North Norfolk Sandbanks and Saturn Reef SAC, will be temporary and reversible, with repeat disturbance only affecting a small proportion of the habitats affected.
Mitigation of adverse effect on sandbanks 3.10: JNCC suggests that there are a number of ways that The Applicant could discuss how the proposed operations could aid in restoration of the sandbank feature and the site and deliver net gain. Ongoing and new activities must look to minimise, as far as is technically practicable, changes in substratum and the biological assemblages within the site. This is to further minimise the impact on feature extent and distribution, demonstrating the risk levels that proposed operations will present to the restoration of the extent and distribution of the sandbank feature.	The Applicant notes JNCC's comments regarding effects to Annex I sandbank features of the North Norfolk Sandbanks and Saturn Reef SAC and would reiterate that it is actively seeking a meeting with both parties, as soon as possible, to discuss their comments and any potential mitigation measures necessary to avoid adverse effects on integrity, to attempt to reach a resolution on this point. As outlined above, the Applicant has provided a robust assessment of the effects of Hornsea Three on the features of the North Norfolk Sandbanks and Saturn Reef SAC, with the conclusion of no adverse effect on integrity. As noted above, the Applicant has also agreed to a number of commitments (e.g. reporting and monitoring of sandwave clearance and cable protection) in line with the conservation objectives of the SAC. The Applicant is pleased to note that Natural England and JNCC accept the evidence presented within the Cable Protection Clarification Note and the Sandwave Clearance Clarification Note (as submitted at Appendix 6 and 11 of the Applicant's response to Deadline I; REP1-138 and REP1-183, respectively), noting the Applicant's responses on these below. This includes the justifications presented for maximum design scenarios for cable protection and sandwave clearance within the North Norfolk Sandbanks and Saturn Reef SAC. However, the Applicant notes the comments made by JNCC with respect to the risks to qualifying features and therefore is actively seeking a meeting, to discuss the questions raised and possible mitigation to minimise these risks. The Applicant has been working with engineers to identify areas where the project design could be further refined to minimise impacts on the seabed, post consent (e.g. through detailed design of cable and pipeline crossings with other operators within the SAC), to further minimise the risk to the North Norfolk Sandbanks and Saturn Reef SAC. As communicated to JNCC prior to Deadline I, the Applicant is willing to discuss possible options for delivering net gain and helping JNCC to restore this feature of the North Norfolk Sandbanks and Saturn Reef SAC. The Applicant would re-iterate its position that Hornsea Three will not have an adverse effect on the integrity of the features of the North Norfolk Sandbanks and Saturn Reef SAC and that the aforementioned discussions with JNCC are therefore to address the perceived risk highlighted by JNCC.
3.11: Understanding the mitigation put in place by the Applicant that decreases seabed impact from a worst case scenario could potentially aid in demonstrating that the proposed operations could be considered as reducing impedance of recovery. While neither Natural England nor JNCC would want the Applicant to include a large amount of comparative assessment within their application, it may prove helpful to provide a tabular summary of major mitigation actions that ameliorate impact on seabed. Examples of mitigation measures undertaken by other activities in	

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NNSSR include reduction of footprint associated with vessel stabilisation through use of alternative work vessels, provision of evidence to quantify footprint of rock dump needed for works and reuse of existing stabilisation material footprints.	
3.12: We also suggest that any operations or evidence the Applicant can undertake or provide that reduces uncertainty around impact to feature and site could support provision of a more robust assessment that better reflects the nature of any impacts associated with planned activities. 3.13: Please see further comments on sandwave levelling in Annex D3.	
More information on cable burial operations is needed for us to reconsider the above position. We acknowledge that much of the technical detail will only be available post-consent, and as such, we strongly recommend that The Applicant's assessment be considered with sufficient precaution added to allow for significant, post-consent increases in worst-case scenarios, especially when operations occur within MPAs.	As per the clarification notes provided on sandwave clearance (Appendix 11 to the Applicants response to Deadline I; REP1-183) and cable protection (Appendix 6 of the Applicants response to Deadline I; REP1-138), the applicant is confident in the maximum design scenario presented with respect to cable protection and sandwave clearance (based on recent and historic cable burial experience in a range of environments).
From the application, we believe the following to be correct. We would like the Applicant to confirm our understanding and provide answers to the questions: • Sandwave clearance will occur on sandwaves up to 6 m in height; • Burial depth will then be 1-2m into the stable bed below the sandwaves; • Remedial works will include: • 2.5 remedial burial events per cable, • reburial of 2km of cable using jetting, • 15 repair events involving	Taking each point individually, the Applicant can confirm the following: • The maximum design scenario presented within Volume 1, Chapter 3: Project Description of the Environmental Statement (APP-058) does not specify a maximum height of sandwaves. The maximum design parameters for sandwave clearance are specified in Table 3.4 of Volume 1, Chapter 3: Project Description of the Environmental Statement and include maximum volumes and impact width, but do not specify sandwave height. The method for calculating these volumes was fully outlined in the Sandwave Clearance Clarification Note (as submitted at Appendix 11 of the Applicant's response to Deadline I; and REP1-183). This reference to the height of sandwaves is from a description of the baseline environment in Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061). • The Applicant can confirm that burial depths will typically be 1-2 m below the stable bed below sandwaves (actual target burial depth will be determined via a Cable Burial Risk Assessment). • The Applicant can confirm that Table 3.76, Volume 2, Chapter 1: Marine Processes of the Environmental Statement states a maximum of 2.5

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recovery of 200 m of cable per repair as well as creation of dredged pits or rock berm, • seabed disturbance from jack-up vessel for each repair event.	remedial burial events per offshore export cable, with a maximum length of cable to be reburied of 2 km. For the purposes of the impact assessment, the maximum design scenario therefore assumes up to 15 remedial burial events across the offshore cable corridor across the lifetime of Hornsea Three (see Table 2.14 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement; APP-062). • Table 3.77 Volume 2, Chapter 1: Marine Processes of the Environmental Statement states that up to 21 export cable repairs could occur over the lifetime of the project, involving recovery of 200 m of cable and replacement with an equivalent length. The method of installation of the new section of cable will be similar to that of construction phase, and therefore may require some trenching, for example. Cable repair events will not result in further habitat loss from to rock protection, beyond the 10% of cable protection assumed for the project. • Table 3.77, Volume 2, Chapter 1: Marine Processes of the Environmental Statement also assumes the use of a jack up vessel for each repair event.
NB: Natural England and JNCC have considered the Sandwave Levelling Clarification Note provided on 9th October 2018 and believe that the impacts of maintenance and repair still aren't clear enough. Please see Annex D3 for full comments.	See the Applicant's response to Natural England and JNCC's queries on this clarification note below.
Sandwave queries	
The extent to which the sandwave heights include the heights of megaripples on top of them is unclear. It would be helpful to understand how much height megaripples could add. It would be helpful to understand if there are results from Race Bank to demonstrate recovery of sandwaves from trenches at 6m depth. It is unclear how The Applicant has considered the change in mobility across the site and whether the majority of the sandwave clearance will focus around Ower and Leman Banks. It is unclear if the methods need to be different across the site. The Applicant should provide further detail as to how they are anticipating that cables will stay buried in a mobile regime where changes in seabed can be in the order of several metres per year and whether these areas of increased fluctuations in seabed	Taking each of the points in turn with respect to sandwave clearance, the following comments are made: The local height of sandwaves is only generally indicated in the assessment and is in the order of 2 to 6 metres (elevation of the crest above the ambient seabed level). In practice, the height of a particular sandwave may locally vary with distance along the crest length and over time. The height of one sandwave may be different to adjacent sandwaves, even in a similar environmental setting. Megaripples are by definition smaller scale features, in the order of tens of centimetres in height. Any local variance in the quoted height of sandwave crests due to the presence or absence of megaripples is within the range of natural variability and does not affect the conclusions of the assessment. Recently released analysis of monitoring data for sandwave clearance locations at Race Bank offshore wind farms (see Appendix 8 to the Applicant's response to Deadline 2) contain three separate locations/examples within the Race Bank array area where sandwaves described as '~5m' or '>5m' in height locally levelled in 2016 have subsequently recovered within one to two years to a similar pattern and also nearly to the preconstruction height (3 to 4 m height). Although the rate of mobility is different across the site, the governing sediment transport processes are the same. As such, there is high confidence (based on the assessment within the Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061) and the evidence presented to Natural England since the DCO submission) that the assessment is applicable to all parts of Hornsea Three and that different methods are not needed for different locations in this case. As part of the cable specification and installation plan, a detailed cable burial plan will assess the locally required initial depth of burial to maintain sufficient sediment cover.

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correspond to areas of deeper sandwaves. The Applicant should provide further justification around the applicability of sandwave clearance modelling for Hornsea Project Two given that the sand mobility within the Hornsea Project Three development site are considerably different.	Cable burial plans are supported by detailed seabed mobility studies which predict the lowest future seabed levels across the offshore cable corridor and the array area. The purpose of sandwave clearance is to ensure that the cable installation tool can bury the cable to the target burial depth, below the stable seabed level, as well as clearing steep sided bedforms which could interfere with tool operation. The rate of sediment mobility under normal sediment transport processes is not relevant to the assessment of sediment plumes caused by active dredging. The processes controlling sediment plume dispersion, and the methods used to model it, are well established. The results of sediment plume modelling in relation to sandwave clearance for Hornsea Project Two have been presented and used as a direct analogue for similar activities for Hornsea Three. The nature of the sediment disturbance, the sediment type and the hydrodynamic conditions are sufficiently similar to that being considered for Hornsea Three that the previous modelling is considered to provide directly relevant evidence in this regard.
We do not believe that the following matters have been addressed • It is unclear how the Applicant calculated the 25% figure needed for operational and maintenance activities and whether this figure includes adequate precaution considering evidence from other industrial operations in the region. • It is unclear if he Applicant expects any cables to be buried within mobile sediment layers and how this relates to the 10% expected to need cable protection, and the 25% remediation expected through operation and maintenance.	Regarding the 25% figure, please see the Applicant's response to Q1.2.7 submitted at Deadline 1. Recent research (Roulund et al., 2018a) and field observations (Roulund et al., 2018b) indicate that scour may develop at some rock berm features under certain conditions. In such an instance there is a risk that the integrity of the cable protection may be compromised and an additional remedial volume of rock at such locations may be required to stabilise the berm. Given that this is an emerging area of study, that the effect develops over long time periods and that the detailed design of cable protection measures has not been finalised, exact determination of the remedial rock volume that may be required is not possible. The Applicant has assessed a further 25% of the maximum design scenario of total installed rock protection as additional rock volume to be deployed in the operations phase to mitigate this phenomenon should it be necessary to do so. This is considered to be realistically conservative based upon the Applicant's experience. At this stage, the Applicant is unable to provide details of where cable protection may be required along the offshore cable corridor. The Applicant will seek to bury cables, wherever possible, as burial to suitable depths provides the most effective form of cable protection. Where the Cable Burial Risk Assessment identifies areas of mobile sediments, the most appropriate installation tools will be used to ensure the cable is buried below the reference seabed level, to minimise the risk of cable exposure during the lifetime of the project. Roulund, A., Larsen, S.M., J. Sutherland, and Whitehouse, R.J.S. (2018a) Scour changes at cable protection rock berms – Model test observations. ICSE 9th International Conference on Scour and Erosion, Taipei, Taiwan, Nov. 2018 Roulund, A., Jensen, P.M., Whitehouse, R.J.S. and Kerry, M. (2018b) Scour and seabed changes at cable protection rock berms – Field observations. ICSE 9th International Confer-ence on Scour and Erosion pp, Taipei, Taiwan, Nov. 2018
4. Reefs	
Adverse effect on reef features	
Based on the information presented and flawed methods used for assessment, the Natural England and JNCC cannot currently provide an evidence-based opinion on the scale of the potential impacts to the Annex I Sabellaria spinulosa Reef	The Applicant would refer the Ex.A to the Applicant's response to Natural England's Relevant Representation (RR-097; paragraph 5.4.3), as submitted at Deadline I, where the same point was raised by Natural England with regard to the methods used for the assessment of effects on Annex I reefs.

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feature of the NNSSR SAC	
Favourable condition status of the reef features **Evidence base/mitigation** **Mapping ephemeral features** **Micro-routing as mitigation** **Micrositing as mitigation: Saturn Reef**	The Applicant has reviewed the latest draft Annex I reef layer for the North Norfolk Sandbanks and Saturn Reef SAC provided by Natural England and JNCC in their Written Representation, and would refer the Ex.A to the Applicant's response to Q1.1.18 as submitted at Deadline I (REP-122), as the Applicant's position on this matter is unchanged. The Applicant is in agreement with Natural England's comment that the 'activities must look to minimise, as far as is practicable, damaging the established (i.e. high confidence) reef within the site', and believes that this is consistent with the mitigation measures put forward by the Applicant for minimising impacts to Annex I reef (as outlined in the Applicant's response to Q1.1.18 as submitted at Deadline I). However, the Applicant does not agree that this latest JNCC mapping demonstrates areas of 'established' or 'high confidence' reef within the part of the Hornsea Three offshore cable corridor that coincides with the North Norfolk Sandbanks and Saturn Reef SAC. This is on the basis that the easternmost data points mapped by JNCC have not been previously mapped, either by JNCC or the Applicant during the Hornsea Three characterisation surveys, and therefore do not represent an area of high confidence reef, i.e. areas where reef has been consistently recorded over a number of years. The Applicant refers the Ex.A to Figure 2.9 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) which shows the potential future Annex I Sabellaria spinulosa reef within the Hornsea Three offshore cable corridor (i.e. the area highlighted in the Natural England Written Representation). Where the new JNCC data points overlap with the Areas E-G, reef has only been confirmed at these locations during one previous survey, so is similarly not considered to represent an area of 'established reef'. The latest data points mapped along the southern boundary of the offshore cable corridor, coinciding with potential future Annex I S. spinulosa reef Area D in Figure 2.9 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, is where reefs were also mapped during the original Saturn Reef survey in 2003 and the JNCC survey in 2013. This was identified as an area of higher confidence reef in Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement. The Applicant acknowledges that this is an area with the greatest potential for S. spinulosa reef to be present prior to construction but would also note that Area D lies within the offshore cable corridor working area and is therefore out with the area of potential direct impact from cable installation. While the JNCC data also show additional records in the vicinity of Areas A and B, which do coincide with the Hornsea Three offshore cable corridor, the assessment presented in Table 2.21 of Volume 2, Chapter 2: Benthic Ecology demonstrates that there is sufficient space in the remaining offshore cable corridor to allow for micrositing around these features. The Applicant also queries the appropriateness of the use of a 500 m buffer around point locations of potential reef, as presented in JNCC's latest reef layer, given that the standard approach in all SACs is to map the extent of Annex I reefs using a combination of video transects and geophysical data, in accordance with the relevant guidance for S. spinulosa reef assessment (i.e. Gubbay, 2007). The Applicant agrees with Natural England and JNCC that I Sabellaria reef does not have a wide distribution in the area and therefore is of the view that the adoption of this approach is inconsistent with this standpoint. In summary, the Applicant is of the view that the latest JNCC data does not have any significant impacts for the assessment undertaken in Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement. Therefore the primary mitigation which has been proposed and is as described in the Applicant's response to Q1.1.18 as submitted at Deadline I (i.e. to undertake pre-construction surveys to delineate the

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	extent of Annex I reefs at the time of construction and to develop mitigation measures, such as micrositing, to avoid these features) remains appropriate for ephemeral habitats such as Annex I S. spinulosa reef as discussed in the Applicant's response to Q1.2.20 as submitted at Deadline I. The proposed mitigation is consistent with the advice from Natural England and JNCC in their Written Representation and the Applicant would note that these are standard mitigation measures which have been applied, and proved to be successful, across many offshore industries, including the offshore wind industry, oil and gas (including pipelines) and interconnector cables. Furthermore, these mitigation measures are consistent with the measures implemented by the aggregates industry within the North Norfolk Sandbanks and Saturn Reef SAC for avoiding Annex I reefs, as outlined in JNCC (2017) 'Supplementary Advice on Conservation Objectives for North Norfolk Sandbanks and Saturn Reef Special Area of Conservation'. The Applicant also refers the Ex.A to the Applicant's response to Q1.1.17 as submitted at Deadline I, which signposts to the relevant sections of the assessment (i.e. primarily Table 2.21 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement) which demonstrates that the Hornsea Three offshore cable corridor is of sufficient width to allow for micrositing around any potential Annex I reef features which may develop prior to construction within the North Norfolk Sandbanks and Saturn Reef SAC. The Applicant is also pleased to note that in paragraph 4.12 of Annex D4 of Natural England's Written Representation they 'welcome the applicant's desire to avoid areas of higher quality reef and/or restrict cable installation to the periphery of reef features' and agrees that in the unlikely event that the primary mitigation fails, this mitigation put forward by the Applicant will decrease the impact on individual reefs.
Core reef	
The Applicant provided an assessment of the likelihood of reef being present in the area of SAC intersected by the cable corridor prior to construction. This uses Natural England's concept of core reef and the reef index (Roberts et al, 2014). A core reef approach requires a historical evidence dataset of suitable confidence, which limits its application not least in offshore sites due to the resources required to develop a sufficient evidence base. It has been JNCC's consistent opinion on offshore casework that a core reef approach is unlikely to be applicable to the assessment of Sabellaria in offshore sites because results of the reef index are highly dependent on the number of surveys undertaken in the area of interest.	Whilst, the Applicant would agree with JNCC's point regarding the core reef approach (see the Applicant's response to Q1.2.18 as submitted at Deadline I; REP1-122), the purpose of the assessment of an impact occurring to potential future Annex I reef (should this develop prior to construction), as presented in paragraph 2.11.1.43 et seq. of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, was to demonstrate that the Hornsea Three offshore cable corridor is of sufficient width to allow for micrositing around any potential Annex I reef features which may develop prior to construction within the North Norfolk Sandbanks and Saturn Reef Special Area of Conservation (SAC; see the Applicant's response to Q1.2.17 as submitted at Deadline I; REP1-122). The assessment indicated that this mitigation measure would be successful and that residual risks to Annex I S. spinulosa reef features are minimal. The assumptions and limitations to the core reef approach were clearly stated in paragraph 2.11.1.53 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062), with the key limitation being the limited number of datasets available for the area of the North Norfolk Sandbanks and Saturn Reef SAC coinciding with the Hornsea Three offshore cable corridor.
While we understand that the Applicant has tried to fulfil requirements of the EWG, we consider that further work is needed to be able to characterise the	The Applicant notes the comment regarding the 500 m buffer but given that the purpose of the pre-construction survey will be to map the precise extent of any reef present prior to construction, the Applicant is confident this will be sufficient to mitigate for potential effects associated with cable installation without the requirement for a buffer and, as discussed above, that the Hornsea Three offshore cable corridor is of

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likelihood of Sabellaria occurring within NNSSR, at present and before construction. We strongly suggest re-analysis using the approach that all other industries take when operating in areas of offshore Sabellaria reef, which is use of the JNCC reef layer with 500m buffers added to allow for change in reef extent and distribution.	sufficient width to allow for micrositing.
We note that buffering in this way lead in a cumulative exclusion zone across the whole of the cable corridor. We suggest that The Applicant considers possibly reroutes around the area of Saturn Reef, or provides evidence as to why rerouting is not possible (for example presence of aggregates extraction areas or a series of cable crossings that would cause prohibitive cost).	The Applicant refers the Ex.A to the comments in relation to Annex I Sabellaria reefs above, including the use of the highly precautionary 500 m buffers suggested by JNCC. The Applicant maintains the position that there is adequate space within the Hornsea Three offshore cable corridor to allow for micrositing around Annex I reef features, avoiding those areas where Sabellaria reefs have most consistently been recorded (e.g. along the southern boundary of the offshore cable corridor).
5. Phased build	
There are elements of the phased build approach that have not been fully explored in the worst case scenario for cable installation as that includes all of the cables being installed at once and the extent of that impact. However, the ability for features to recover may be hindered by repetitive adjacent impacts from the installation and associated infrastructure.	As outlined in the Applicant's response to Q1.2.2 as submitted at Deadline I (REP1-122), the potential for disturbance and repeat disturbance to benthic habitats from cable installation, across the lifetime of the project, has been fully assessed within Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062). The Applicant's response to Natural England's Relevant Representation (RR-097; paragraph 5.4.14), as submitted at Deadline I, provides signposting to the relevant sections of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement where the assessments are presented. The Applicant would also refer the Ex.A to their response to Ex.A question Q1.2.103 presented at Appendix 17 to the Applicant's response to Deadline I (REP1-178) where project lifetime effects of export cable installation (including from a phased construction) are considered for each of the SACs affected.
6. Survey evidence	
JNCC has a considerable amount of questions for the Applicant on their analysis and interpretation of benthic survey results. We had the opportunity through the Benthic EWG to provide initial comments to The Applicant on the quality of their benthic analysis. Where The Applicant provided comment, we remain uncertain that the analyses have been undertaken to the standards that we would expect in a development of this nature. Please see detailed comments in the table	The Applicant has provided a response below to the specific points made by JNCC regarding the analysis and interpretation of benthic survey results. The Applicant would additionally point out that both JNCC and Natural England had the opportunity to comment on the benthic analysis at PEIR and not only through the EWG. The Applicant also refers the Ex.A to the Applicant's response to Q1.2.15 (REP1-122) which outlines that although there may be legitimate differences in professional opinion with respect to biotope identification and statistical analyses, the Applicant does not believe any such difference is a material consideration for the determination of the DCO application.

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below.	
Table 7.1 – Comments on Vol. 2 Chapter 1 – Benthic Ecology 7.1.1 T2.9: Definition of SS.SSa.IFiSa.IMoSa needs editing, some words appear to be missing. We are also unclear why this biotope is included as an epifaunal biotope, with much of the characteristic abundance being infaunal.	The Applicant acknowledges this comment and would refer Natural England and JNCC and the Ex.A to the text in Table 4.3 of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement (APP-102) for the SS.SSa.IFiSa.IMoSa biotope which is correct. The description of the SS.SSa.IFiSa.IMoSa biotope on the JNCC website (http://www.jncc.gov.uk/marine/biotopes/biotope.aspx?biotope=JNCCMNCR00000775) states that epifaunal species such as Asterias rubens may be encountered in this biotope and are the "most conspicuous species present". Therefore, it was deemed appropriate to assign the epifaunal communities, identified from the drop down survey, in areas of sandy sediment with few epifaunal species except for echinoderms, to the IMoSa biotope. However, as outlined in paragraph 4.1.4.80 of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement, for the majority of the Hornsea Three benthic ecology study area the infaunal and epifaunal biotopes were combined to form one single infaunal biotope, due mainly to the typically sparse epifaunal communities characterising these areas.
7.1.2: T2.9: SS.SCS.ICS.SSh – we are unclear as to whether this biotope is correctly assigned.	As discussed in Table 2.9 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062), the SS.SCS.ICS.SSh was assigned as an epifaunal biotope in areas coarse gravelly sand with a distinct lack of epifauna. Although it is noted that the sediment type may not exactly match that of the biotope description on the JNCC website (http://www.jncc.gov.uk/marine/biotopes/biotope.aspx?biotope=JNCCMNCR00001942) of cobbles and pebbles, the lack of conspicuous fauna was considered to be characteristic of this biotope. The Applicant would note that, as outlined in section 2.7.6 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, the classification of community data into biotopes is not always straightforward, as some communities do not readily fit the available descriptions in the biotope classification system and therefore there will always be the potential for differences in biotope identification between different benthic analysts.
7.1.3: T2.13: Habitat E: when outwith European sites, *Sabellaria* reef remains an Annex I feature.	The Applicant agrees with this comment which is consistent with the criteria outlined in Table 2.12 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) used to inform the valuation of ecological receptors. Annex I habitats not within an SAC boundary as defined as being of national significance, which is consistent with the valuation assigned to Habitat E
7.1.4: T2.14: Temporary habitat loss: offshore cable corridor – total subtidal temporary habitat loss adds up to 30,237,542 m2, not the 29,789,810 m2 in the document (unless some sets of impact are on the same area of site).	The Applicant has reviewed the areas of temporary habitat loss numbers presented in Table 2.14 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) and can confirm that the total area of temporary subtidal habitat loss/disturbance within the Hornsea Three offshore cable corridor presented in Table 2.14 and paragraph 2.11.1.13 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement is incorrect and should be 30,237,542 m2. It should be noted, however, that the total area of temporary subtidal habitat loss/disturbance of 68,645,736 m2 is correct, as are the maximum potential losses of each receptor affected within the Hornsea Three offshore cable corridor as discussed in paragraph 2.11.1.17 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement and also within the designated sites. Therefore, the assessment is correct and the conclusion is unchanged by the error highlighted within the maximum design scenario table.
7.1.5: T2.14: Temporary habitat loss: offshore cable corridor – where does the figure of 1,202,946 m3 originate from? Can this be	As discussed in Table 2.14 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062), the total area of seabed affected from the placement of coarse, dredged material was calculated assuming a mound of uniform thickness of 0.5 m height (i.e. volume divided by the thickness of the deposit). Explanation of this assumption is provided in the 'Justification' column of that table.

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signposted to another document?	
7.1.6: T2.14: Long term loss of seabed habitat: offshore cable corridor – we are pleased that The Applicant are considering a range of cable protection options. We suggest that it is noted in the table which options are being considered for inshore only (e.g. fronding, artificial seaweed).	The range of cable protection measures specified in Table 2.14 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) are being considered for all areas of the Hornsea Three offshore cable corridor. Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement outlines the specific cable protection mitigation measures which are proposed for use in designated sites which are also clarified in the Cable Protection Clarification Note presented in Appendix 6 to the Applicant's response to Deadline I (REP1-138).
7.1.7: T2.14: *'Long term loss of seabed habitat through presence of foundations, scour protection and cable protection, resulting in potential effects on benthic receptors':* • Using The Applicant's impact assessment tables, we believe magnitude in NNSSR should be moderate, as minor implies the lack of long-term loss to the system. Moderate, on the other hand, implies that there is some degree of long term loss. • It is currently unclear how this phase of long-term habitat loss coincides with footprints of temporary habitat loss from construction work. This needs to be detailed to allow best understanding of total impact. • It is currently unclear to us how these figures relate to replenishment of 25% of cable length and crossings and the permanent habitat loss at decommissioning. Is extra cable protection expected in this, and where is the expected extra cable protection included – is it included under long term loss? What percentage of this 25% is expected to need cable protection? • Spud cans – is it expected that hard substrate will be needed for stabilisation of spud cans. If not, please provide evidence for this.	Taking each of the points in turn on the assessment of long term habitat loss the following comments are made: With reference to Table 2.16 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) the definition of minor magnitude of impacts includes 'minor loss of […] to, one (maybe more) key characteristics, features or elements'. Therefore, it is incorrect state that a magnitude of minor implies a lack of loss to the system. Impacts to Annex I features of the North Norfolk Sandbanks and Saturn Reef SAC associated with cable installation, including, cable protection have been detailed in full in the Applicant's response to Ex.A question Q1.2.103 presented at Appendix 17 to the Applicant's response to Deadline I (REP1-178). The Applicant has provided clarification of the 25% cable replenishment maximum design scenario in the Applicant's response Natural England's Relevant Representation (paragraph 5.4.15; RR-097) and also in response to Ex.A Q1.2.7 as submitted at Deadline I (REP1-122). In the Applicant's experience, hard substrate under spud cans is not needed during offshore wind farm construction or operation and maintenance activities. Therefore, we do not foresee the need to use hard substrate under spud cans within the Hornsea Three array area or the offshore export cable corridor. As outlined in Natural England's response to Ex.A Q1.2.6, as submitted at Deadline I, Natural England agrees with the assessment presented in Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, that in terms of the wider EIA context (i.e. outside of designated sites) the impacts may be considered minor adverse on epifaunal and infaunal communities.

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• Prediction of no long term habitat loss should be evidenced fully. We advise that the impact does not need to weaken regional ecosystem functions to be significant.	
Colonisation of foundations / cable protection / scour protection may affect benthic ecology and biodiversity We agree that potential beneficial effects may occur from introduction of hard substrate into a soft substrate system. However, within MPAs, this must be considered secondary to the requirement to recover or maintain the features for which the site is designated. As such, any potential benefits from hard substrate in NNSSR are contradicted by the impact that the hard substrate will have on the features of the site and the achievement of recovery.	As outlined in the Applicant's response to Ex.A Q1.2.103 as presented at Appendix 17 to the Applicants response to Deadline I (REP1-178), it is for this reason that the sensitive cable protection measures, as outlined in Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, have been proposed to facilitate some continued ecological functioning in these areas and therefore to limit the effects of long term habitat loss in contrast to other cable protection measures.
We suggest that The Applicant continues to consider potential interaction with *Didemnum vexillum* before construction, given that it has been found subtidally in the North Sea, and that it is known to be both invasive and can invade sediment seabeds.	As outlined in Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, a Biosecurity Plan will be produced for Hornsea Three and will be agreed in consultation with statutory consultees, which will detailing how the risk of potential introduction and spread of INNS will be minimised.
7.1.8: 2.9.2.5: We suggest that the "expert's professional judgement" is elaborated upon – what qualifies that person as an expert? In accordance with the latest EIA Directive, throughout the application it would be useful to understand evidence bases and the quality assurances for 'appropriateness'	The ES was prepared in accordance with the 2009 EIA Regulations per the transitional arrangements and there was no requirement to narrate author's credentials as suggested. However, the Applicant is pleased to confirm that experts, in the context of the benthic ecology assessment for Hornsea Three, were considered to be experienced benthic ecology specialists (i.e. with a minimum of 5 years' relevant experience) and with an appropriate level of membership to a relevant industry/technical body (e.g. IMarEST, CIEEM) and/or chartered status (e.g. Chartered Marine Scientist).
7.1.9: T2.18: We note that areas of low reef and medium reef should be determined as Annex I reef, as does areas of potential reef.	The Applicant is in agreement with JNCC and Natural England on the point that areas of low and medium reef are determined as Annex I reef and notes that this is consistent with the relevant guidance for S. spinulosa reef assessment (i.e. Gubbay, 2007). The Applicant does not, however, agree with classification of 'potential reef' as Annex I reef. This is contrary to the established guidance (e.g. Gubbay, 2007, Irving, 2009) which clearly categorise areas which do not meet the relevant 'reefiness' criteria as 'Not a reef'.
7.1.10:	The Applicant is pleased to note that Natural England and JNCC 'welcome the

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General Point: We would like further discussion with The Applicant about the details of routing around reef – would this be to the expected 500 m as per JNCC guidance, or would it be considerably nearer to areas of reef? We would like to consider further the relative value of restricting routes to the periphery of reef features versus bisection.	applicant's desire to avoid areas of higher quality reef and/or restrict cable installation to the periphery of reef features' as outlined previously in their Written Representation and as outlined above with respect to Annex I sandbanks and reefs, the Applicant is keen to meet with JNCC and Natural England to discuss further the mitigation measures proposed for Annex I reefs. The Applicant would refer the Ex.A to the Applicant's comments above in relation to the use of a 500 m buffer around Annex I S. spinulosa reefs. The Applicant is not aware of the JNCC guidance referred to by Natural England, or the the evidence supporting such a buffer or that this buffer has been applied to offshore industries historically. Micrositing has historically been informed by mapping of reef extents via geophysical and seabed imagery datasets.
7.1.11: General Point: Cable / scour protection optimisation is noted as "may include". What likelihood is there that optimisation will occur?	As outlined in Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062), the Applicant is committed to employing sensitive cable and scour protection within designated sites. The precise details of these measures, e.g. the grading and volumes of rock protection required within designated sites, will be detailed in the Cable Specification and Installation Plan and the Scour Protection and Management Plan which will be produced prior to construction and agreed in consultation with statutory consultees.
7.1.12: 2.11.1.13 2.11.1.40 / RIAA 5.6.1.5: "*it is reasonable to assume similarity of sediment particle size with depth based on sediment transport processes*". Could this be elaborated on? It is discussed in the Marine Processes chapter? If so, could it be signposted. If not, references should be provided that explain the comment. For example Standard aggregate best practice is to acquire sediment profile data to ascertain the correct depth they can dredge to whilst still leaving behind some of surface sediment type. Therefore we advise that it would be worth looking into if there is a standard depth for this? But if the Applicant is alluding to bathymetric depth here then we would agree.	In paragraphs 2.11.1.13 and 2.11.1.40 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062), the following assumption of similarity of sediment particle size distribution (PSD) with depth (below the local seabed surface) is made in relation to sandwaves and sandwave clearance: "It is reasonable to assume a similarity of sediment particle size with depth through the sandwave on the basis of sediment transport processes". The processes that create sandwaves result in a relatively uniform and well-sorted sediment particle size distribution throughout the sandwave body. Sandwaves tend to develop in areas with a plentiful supply of mainly sandy sediment, where the sand locally accumulated in sandwave features is similar to and continuously exchanging with the sand present in the surrounding seabed. The sediment within mobile sandwaves is being continually transported and overturned (and so mixed), which also encourages uniformity in sediment type with depth through the active part of the feature. For these reasons, it is reasonable to assume that the sediment disturbed by sandwave clearance will have a similar particle size distribution with depth through the affected part of the sandwave, and will also have a similar particle size distribution to nearby seabed surficial sediments. The reference to standard aggregate best practice is not considered to be relevant in this case.
7.1.13: 2.11.1.5: We are unsure what a "displacement scour" is as a method of boulder clearance. Could this be explained further in relation of levels of impact. What levels of impact are included in the previous assessment of cable impacts?	The Applicant can confirm that this is an error in the text in paragraph 2.11.1.5 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) and displacement scour should read 'displacement plough'.

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7.1.14: 2.11.1.17: This needs to be explained further.	It is unclear which part of paragraph 2.11.1.17 needs to be explained further but the Applicant would refer the Ex.A to the Applicant's response to Q1.2.21, submitted at Deadline 1 (REP1-122), which provides further explanation of the text relating to the assessment of effects on Habitat E.
7.1.15: 2.11.1.19: Impact is not just area, but also timing and relative severity.	The Applicant agrees with this comment and this is reflected in the overall assessment of the magnitude of the impact as presented in paragraph 2.11.1.23 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062).
7.1.16: 2.11.1.29: Habitats D and E should be separated for assessment, and this paragraph needs splitting to apply either to D or E (or both). Evidence regarding *Sabellaria* also needs to be corrected to provide consistent understanding of the organism to impact and the reef to impact.	The Applicant notes Natural England's comment on paragraph 2.11.2.29 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062), but would highlight that both Habitat D and E were characterised by the SspiMx biotope and that the information presented in the Marine Evidence based Sensitivity Assessment (MarESA) for this reef forming biotope was used to inform the sensitivity assessment for these habitats. Therefore, in the case of Habitat D the assessment is precautionary on the basis that reefs were not recorded in association with SspiMx recorded in areas of this habitat.
7.1.17: 2.11.1.45: JNCC/Cefas survey should be referenced.	Paragraph 2.11.1.45 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) does reference the 2013 JNCC/Cefas survey (Jenkins et al., 2015) of the North Norfolk Sandbanks and Saturn Reef SAC. The most recent JNCC survey data/report were not available at the time of submission of the Environmental Statement but as discussed above in response to Natural England's comments on the Saturn reef, the Applicant is of the view that the latest JNCC data does not have any significant impacts for the assessment undertaken in Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement.
7.1.18: 2,11,1,46: "… *conditions for* S. spinulosa *formation*" should read "… conditions for *S. spinulosa* reef formation" This is also still confused on sandwave levelling and cable protection clarification notes Oct 2018.	This point is noted.
7.1.19: 2.11.1.50: Reference needs adding to the reference list.	The Applicant refers JNCC and the Ex.A to the Applicant's response to the Marine Management Organisation (MMO) Relevant Representation as submitted at Deadline I (REP1-131; see comment 4.11). The Jenkins et al. (2015) reference is as follows: Jenkins, C., Eggleton, J., Albrecht, J., Barry, J., Duncan, G., Golding, N. and O'Connor, J. (2015). North Norfolk Sandbanks and Saturn Reef cSAC/SCI management investigation report. JNCC/Cefas Partnership Report, No. 7.
7.1.20: 2.11.1.52: We understand that there is more flexibility in the temporary working corridor, but temporary or long term impact may still occur there that coincides with areas of reef or potential reef. We suggest that this area is treated in the same way as the cable corridor itself.	It is not appropriate to treat these areas the same as the export cables will only be installed within the Hornsea Three offshore cable corridor and not within the temporary working area, therefore the only potential for direct disturbance to reefs within the temporary working corridor will be from anchor placements or the deposition of sandwave clearance material. However, as outlined in Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062), should reefs be identified within the temporary working corridor, appropriate measures will be discussed with statutory consultees to avoid direct impacts to these features (e.g. from disposal of sandwave clearance material).
7.1.21:	The Applicant notes this comment but would highlight that, as outlined in paragraph 5.2.1.2 of the Report to Inform Appropriate Assessment (RIAA; APP-051), the

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2.11.1.61: The updated Conservation Objectives for the site should be used, not JNCC 2012.	Conservation Objectives identified within the RIAA were informed by the updated JNCC conservation advice for the North Norfolk Sandbanks and Saturn Reef SAC (December 2017).
7.1.22: 2.11.1.61: We advised The Applicant that aggregates Area 483 is now licensed. Dredging area and exclusion zones can be obtained from the MMO.	At the time of submission of the Environmental Statement Area 483 was an application area and was included as such (i.e. a Tier 2 project) in the cumulative effects assessed in section 2.14 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062). The Applicant would note however that reassigning Area 483 from Tier 2 to Tier 1 would not result in a change to any of the assessments of significance of effect presented in section 2.13 of Volume 2 Chapter 2: Benthic Ecology of the Environmental Statement.
7.1.23: 2.12.2.3: We recommend that temporary impacts associated with maintenance operations be included in CEA.	The Applicant would note that JNCC and Natural England had the opportunity to comment on the impacts screened into the CEA presented in section 2.13 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) during Section 42 consultation on the PEIR and did not raise this comment at that time. The Applicant would reiterate, as outlined in paragraph 2.12.2.3 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement, that the potential impacts associated with maintenance activities Hornsea Three alone are relatively localised and temporary in nature and therefore have limited or no potential to interact with similar changes associated with other projects. Accordingly, this impact was scoped out of the cumulative assessment.
	The Applicant can provide clarification directly to Natural England on each of the points raised in their Written Representation with regards to Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement (APP-102) and specifically the benthic analysis. However, for the reasons outlined in full in the Applicant's response to Q1.2.15 as presented at Deadline I (REP1-122), this is not deemed to be a material consideration for the determination of the DCO application.

Response to Annex D5 (REP1-214) of Natural England's Written Representation

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General	
2.1: Natural England and JNCC note that there is no direct link to conservation advice packages for the sites; including an assessment against operations likely damage listed on Natural England's designated Sites System and the Supplementary Advice on Conservation Objectives for the Wash and North Norfolk Coast (W&NNC) SAC.	The Applicant would note that the Conservation Objectives and Advice are referenced in paragraphs 5.2.2 and 5.2.3 and summarised in Table 5.2 of the RIAA (APP-052). Potential impacts are summarised in Table 5.1 and linked to proposed activities in Table 5.3. The Applicant acknowledges the site conservation advice packages (https://www.gov.uk/government/publications/southern-north-sea-marine-area-index-map-and-site-packages), including advice on operations. The RIAA assess the potential effects of the Project in a manner which we believe to be consistent with the identified pressures and receptors detailed in the Advice.

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2.2: In addition we also question why 'long term temporary' has been determined when the impacts are likely to be persistent over the life time of the project and removal at decommissioning is highly unlikely.	The Applicant would highlight that it is incorrect to state that impacts to the North Norfolk Sandbanks and Saturn Reef SAC and The Wash and North Norfolk Coast SAC resulting from the installation of cable protection have been assessed as 'long term temporary' within the RIAA (APP-052). As outlined in paragraph 5.5.2.1 et seq. of the RIAA for The Wash and North Norfolk Coast SAC and paragraph 5.6.2.1 et seq. of the RIAA for the North Norfolk Sandbanks and Saturn Reef SAC, the installation of cable protection has been assessed as permanent/long-term to cover the 35 year design life of Hornsea Three. The post-decommissioning maximum design scenario assumed that cable protection would be left in situ.
2.3: Natural England and JNCC do not agree with the determination of 'insignificant' which is an EIA term. In relation to the habitat regulations we advise that there is a likely significant effect and that there is a risk that the impacts will hinder the conservation objectives for the site.	An assessment against the conservation objectives and conclusions of the effects on site integrity for the North Norfolk Sandbanks and Saturn Reef SAC and The Wash and North Norfolk Coast SAC are presented in Appendix A of the RIAA (APP-052). The Applicant would refer the Ex.A to their response to Annex D4 of Natural England's Written Representation above, for a full response to Natural England/JNCC's advice on adverse effects on integrity on these SACs.
2.4: In relation to the Annex I sandbanks it should be noted that the documents do not differentiate between the habitats/ sediments and hydrodynamics of nearshore sandbanks of the W&NNC SAC compared to those of the offshore sites such as Inner Dowsing, Race Bank and North Ridge, Haisborough Hammond and Winterton SAC and North Norfolk Sandbanks SAC.	The characterisation for the habitats and sediments associated with the sandbanks of The Wash and North Norfolk Coast SAC are described in section 5.45 of the RIAA (APP-052).
3.The Wash and North Norfolk Coast	
3.1: On account of limited survey data for each of the features there is uncertainty in relation to the scale of the impacts. Consequently we are unable to agree with the conclusions.	The Applicant's position is that the baseline characterisation within the Wash and North Norfolk Coast SAC is robust for the purposes of the EIA and the RIAA. The reasons for this are set out in the Applicant's response to Ex.A question Q1.2.12 (REP1-122) and the Applicant's comments on the Natural England, MMO and Eastern IFCA responses to Ex.A question Q1.2.13. The Applicant notes Natural England's comment here in relation to the information presented within the RIAA but also welcomes Natural England's recent review and consideration of the results of the drop down video survey of the Hornsea Three offshore cable corridor that coincides with The Wash and North Norfolk Coast SAC (i.e. The Wash and North Norfolk Coast SAC Clarification Note, presented at Appendix 5 of the Applicant's response to Deadline I; REP1-140). The Applicant is pleased to note that Natural England have confirmed in paragraph 2.5 of Annex D1 of their Written Representation (REP1-210) that the drop down video survey is acceptable for the purposes of characterisation, noting the comments in relation to geophysical and geotechnical datasets for this area.

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3.2: It is Natural England's view that in order to undertake a comprehensive in-combination assessment the marine licence variation request, the O&M licence and the marine licence application for the Race Bank project which are also proposed within the W&NNC SAC are included in the assessment	Natural England's comments regarding the Race Bank offshore wind farm marine licence applications/variation are noted but the Applicant would highlight that the application documents were not available at the time of the DCO submission in May 2018. The Applicant will, however, provide an update to the in-combination assessment at Deadline 3.
3.3: Natural England notes that no Annex I geogenic or biogenic reef has been found in the areas of search. However, having considered the Drop Down Video (DDV) stills Natural England wishes to highlight the following: 3.3.1: There is some interesting subtidal coarse and mixed sediment with epifauna and some slightly longer lived species that you would expect to find in more stable sediment conditions, which would indicate that at these locations limited natural backfill would occur should dredging take place.	The Applicant notes and agrees with Natural England's comments on the drop down video footage presented in the Wash and North Norfolk Coast SAC Clarification Note submitted by the Applicant at Appendix 5 of the Applicant's response to Deadline I (REP1-140). The Applicant would however highlight that even though relic scarring may remain for a longer period than in sandier sediments, the benthic communities will still recover on the basis that the sediment composition will recover in these areas. The Applicant is pleased to note that Natural England are in agreement on this point as stated in paragraph 3.1 of Annex D1 of Natural England's Written Representation (REP1-210).
3.3.2: It should also be recognised that subtidal coarse and mixed sediment are sub-features of both Annex I Large shallow inlet and bays and Sandbanks slightly covered by seawater all of the time and are part of the complex features of the site. Under Natural England's advice on operations for cabling (including protection) both of these sub-features are deemed to be sensitive to many of the pressures resulting from cable activities. This will need to be considered further when considering the conservation objectives for the site and supplementary advice on conservation objectives which states *'Maintain the existing distribution of sediment composition across the feature.'*	The Applicant notes and agrees with Natural England that the subtidal coarse and mixed sediment sub-features are sensitive to disturbance but would reiterate that these habitats will recover and the Applicant would refer the Ex.A to the information presented by the Applicant in The Wash and North Norfolk Coast SAC Clarification Note (REP1-140).
3.3.3: Whilst the conservation objective for the extent and distribution of reef features of the W&NNC SAC is to 'Maintain' the features in their current condition; the 'Maintain' target does not preclude the need for management, now or in the future, to avoid a significant risk of damage or deterioration to the feature. The supporting and/or explanatory notes in the SACOs set out why the target was chosen and any relevant site based supporting information. This is based on the best available information, including that gathered during monitoring of the feature's current condition. Hence the current requirement for extending the EIFCA byelaw areas. The regulator will need to take into account the placement of rock armouring in these locations as it will effect and/or invalidate the management of other activities within the site and the conservation objectives.	The Applicant acknowledges these comments, although would note that the introduction of a small area of rock protection (i.e. up to a maximum of 46,200 m^2) within an extensive broadscale habitat (i.e. the subtidal mixed sediment sub-feature) would not invalidate the management measures proposed by the EIFCA. It is accepted that there may be some effects on the mixed sediment sub-feature (depending on whether cable protection is required in these areas), however the proportion of mixed sediments affected by cable protection off the North Norfolk coast and across the wider SAC would be very small.
3.3.4: It should be noted that *Sabellaria spinulosa* reef follow different life stages therefore whilst it may only be encrusting currently there is no evidence to show that it won't develop into reef in the future and the presence of rock armouring would hinder its development. Due to significantly different characteristics, Natural England do not agree with the applicant that because rocky reefs are protected the presence of rock protection can be considered a positive effect. We therefore	The Applicant can clarify that they do not consider that the presence of cable protection is a positive effect, it is clearly assessed as an effect of permanent/long-term habitat loss in paragraph 5.5.2.1 et seq. of the RIAA. As outlined in paragraph 5.5.2.6 of the RIAA (APP-051), the Applicant does not consider that the presence of sensitive cable protection measures within The Wash and North Norfolk Coast SAC will preclude the establishment of Annex I reef

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advise that this position would not protect the features the site is designated for and therefore would not be compliant with the Habitats Regulations.	in these areas in the future. The Applicant refers the Ex.A to Section 5 of the Cable Protection Clarification Note (Appendix 6 of the Applicant's response to Deadline I; REP1-138) where evidence for the colonisation of man made structures by Sabellaria spinulosa is presented. The Applicant notes that Natural England have stated in Annex D2 of Natural England's Written Representation (REP1-216) that there are ongoing discussions in relation to the Annex I status of S. spinulosa reef growing over artificial substrate.
3.4: NB: Some of the comments in relation to reef features may also be pertinent for other offshore designated sites.	The Applicant acknowledges this comment.
4. North Norfolk Sandbanks and Saturn Reef SAC	
4.1: We do not believe that The Applicant has either provided enough evidence for, or assessment of, impact to protected features or site integrity for the North Norfolk Sandbanks and Saturn Reef (NNSSR) SAC. As such, we cannot agree that the project is unlikely to have any 'significant effect' on designated features or Adverse Effect on the Integrity (AEoI) of the site.	The Applicant notes Natural England and JNCC's comments regarding effects to Annex I sandbank and reef features of the North Norfolk Sandbanks and Saturn Reef SAC and direct the Ex.A to the Applicant's response to Annex D4 of Natural England's Written Representation above. The Applicant would also reiterate that it has requested a meeting, as soon as possible, with both Natural England and JNCC to discuss their comments and potential mitigation measures to avoid adverse effects on integrity on the North Norfolk Sandbanks and Saturn Reef SAC in further detail. As communicated to JNCC prior to Deadline I, the Applicant is willing to discuss possible options for delivering net gain and helping JNCC to restore the Annex I sandbank feature of the North Norfolk Sandbanks and Saturn Reef SAC. The Applicant would re-iterate its position that the Hornsea Three RIAA ((APP-051) has not predicted an adverse effect on the integrity of the features of the North Norfolk Sandbanks and Saturn Reef SAC and that the aforementioned discussions with JNCC are therefore to address the perceived risk highlighted by JNCC.
4.2: Within **Annex D4** JNCC and Natural England raise detailed concerns in relation to the current favourable condition of the Annex I sandbanks features of North Norfolk Sandbanks SAC. In particular to the introduction of further rock armouring to the site from cable protection and sandwave levelling and the ability of the features to recover.	
4.3: JNCC suggests that there are a number of ways that the Applicant could discuss how the proposed operations could aid in restoration of the sandbank feature and the site and deliver net gain. Ongoing and new activities must look to minimise, as far as is technically practicable, changes in substratum and the biological assemblages within the site to minimise further impact on feature extent and distribution, demonstrating the risk levels that proposed operations will present to the restoration of the extent and distribution of the sandbank feature.	
4.4: While neither Natural England nor JNCC would want the Applicant to include a large amount of comparative assessment within their application, it may prove helpful to provide a tabular summary of major mitigation actions that ameliorate impact on seabed. Examples of mitigation measures undertaken by other activities in NNSSR include reduction of footprint associated with vessel stabilisation through use of alternative work vessels, provision of evidence to quantify footprint of rock dump needed for works and reuse of existing stabilisation material footprints. Further project design modification may also prove essential to minimise the impacts - **please see Annex D3.**	
4.5: The primary mitigation for impact to *Sabellaria* reef in the application is "where possible" avoidance of reef area. We note that if the suggested mitigation is successful, we would agree with the assessment of magnitude. However, we advise that it is necessary to look at this primary mitigation with a degree of	

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precaution, given the overlap demonstrated in **Annex D4** Figure 2 with Saturn Reef	
4.6: Given the above, the Applicant's survey data and the recent JNCC survey data Natural England and JNCC believe that there is a high probability that *Sabellaria spinulosa* area to be managed as reef could continue to straddle the Saturn reef area of the cable route (post consent) for there to be insufficient space to micro-route around the reef feature. Therefore, whilst we continue to advocate that the standard mitigation measure/marine licence conditioned to avoid reef features is included in the Projects DML it may not be feasible to do so. To address this the Applicant has included the caveat 'where possible', but Natural England and JNCC have concerns about the increased level of risk to the integrity of the site such a caveat would endorse as there are no parameters to assess and agree what is "possible".	
4.7: We do not consider the Applicant's consideration of routing through 'lower quality' reef to be acceptable in terms of restoration of conservation objectives as the 'lower quality' reef mentioned by the applicant is still contained within area to be managed as reef, with the protection provided by Annex I status 4.8: In addition the evidence presented in the HRA to support conclusions on recoverability relates only to individuals/abundance, but not to reef. Accordingly we have limited confidence in the ability of reef to recover from cable installation activities and we further advocate that the standard mitigation measure of avoidance is adhered to.	
4.9 Furthermore whether reef is avoided or not during installation there does remain a risk during O&M cable remediation activities that reef could establish across the cable corridor or nearby areas where remediation activities needed to occur. Accordingly, every effort should be made, with input from the MMO and Natural England, to minimise the impacts at the time of undertaking the works	The Applicant acknowledges the comments from Natural England on this point and every effort will be made to minimise impacts to Annex I reefs which may develop across the Hornsea Three offshore export cables once installed from maintenance activities, with appropriate input from the MMO and Natural England.
5.1: General Comment: When working on other Ørsted projects where the initial burial was unsuccessful, the subsequent reburial attempts and eventual placement of rock armouring was considered to be part of the construction phase and taken forward by the construction team. The rock armouring that has been put forward of the O&M over the lifetime of the project is assessed not to have an impact as will be replenishment of rock in existing areas of rock armouring. This is currently difficult to understand in terms of overall impact. We also question why is O&M only considered temporary when rock armouring is persistent.	The assessment for habitat loss acknowledges the permanent nature of this impact (section 5.5.2 of the RIAA; APP-052). The assessment is based on a conservative maximum design scenario of the amount of cable protection required (up to 10% of cable length) and the assumption that cable protection will not be decommissioned during the decommissioning phase.
5.2: 2.3.5.3: Please note that there is a more up to date version of HRGN1 than the 1997 version used. Natural England can provide the December 2017 version if required.	The Applicant acknowledges the comment and considers that the RIAA has been prepared in a manner consistent with this updated guidance.

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5.3: 2.3.5.3: "An adverse effect on integrity is likely to be one which prevents the site from making the same contribution to FCS as it did at the time of designation" – this definition is incorrect and needs amending.	The Applicant recognises that Site integrity may be defined as 'the coherence of its ecological structure and function across its whole area which enables it to sustain the habitats, complex of habitats and/or population levels of the species for which it was classified (or designated)'. We do not believe that this definition affects the approach adopted, or conclusions reached, in the RIAA (APP-052).
5.4: Table 3.2: Benthic impacts from the cable route prep not included such as grapnel run, UXO clearance, boulder clearance and sandwave clearance.	Table 3.2 of the RIAA (APP-052) provides a summary of activities and associated activities (such as grapnel runs etc.) are inherent within the wider category of 'cable laying operations'.
5.5: Table 3.2: We note that understanding positive or negative impacts associated with the colonisation of hard structures is constrained when within sediment MPAs. While hard substrate may lead to localised increases in biodiversity, this will generally not have any positive impact on protected features in a site.	The RIAA (APP-052) does not present such localised increases as positive; for example paragraph 5.6.2.12 states 'In a habitat where encrusting epifaunal species are rare, this is likely to represent highly localised shifts in the baseline conditions.'
5.6: Table 3.10: Benthic – needs to be clear that Reefs include geogenic as well as biogenic.	Table 3.10 of the RIAA (APP-052) uses the term Reef to encompass all potential types of reef habitat, including both biogenic and geogenic reefs). The specific types of reef habitat considered are stated in the RIAA (e.g. paragraph 5.4.5.1 for The Wash and North Norfolk Coast SAC).
5.7: Table 4.1 – Construction: (See point 5.1. above for general comment about the consideration of Rock armouring). Ground clearance isn't just about prep for gravity bases. Boulder Clearance, UXO clearance, grapnel runs, sandwave levelling should all be considered. Nowhere in any of the documents is location for depositing dredge material from sandwave levelling from within in the Wash & North Norfolk Coast considered and impacts to the interest features assessed. We question why only coarse dredged material is being placed in the offshore cable corridor area.	See the Applicant's response to point 5.1 above in relation to rock armouring. Table 4.1 explicitly includes sandwave levelling (the term sandwave clearance is used) and boulder clearance, e.g. page 28 of the RIAA (APP-052). In relation to locations for deposition of dredged material the Applicant notes that the effect of placement of dredged material on seabed habitats (including qualifying features of the Wash and North Norfolk Coast SAC) is fully assessed within the RIAA (see Table 4.1 of the RIAA; APP-052). While it is not possible at this stage to determine the exact location of where this dredged material will be placed, measures will be put in place to ensure dredged material is not placed in the vicinity of sensitive habitats, i.e. Annex I Annex I reef features (see Table 4.5 of the RIAA; APP-052). It is assumed that only coarse dredged material will be deposited on the seabed, as finer sediment fractions will be dispersed in the water column either during dredging or during disposal operations (see Volume 2, Chapter 1: Marine Processes of the Environmental Statement; APP-061).
5.8: Table 4.1 – Operation: Long term loss of sea bed habitat including from cable protection - without removal at decommissioning the impacts are likely to persist and	As outlined in paragraph 5.5.2.1 et seq. of the RIAA (APP-052) for The Wash and North Norfolk Coast SAC and paragraph 5.6.2.1 et seq. of the RIAA for the North Norfolk Sandbanks and Saturn Reef SAC, the installation of cable

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depending on the location may hinder the conservation objectives of the designated sites. Currently there is no guarantee of removal. The documents provided for the current Race Bank marine licence application includes two options for rock armouring removal that involve dredging up the material. The document provided was purely a method statement and didn't take into consideration the feasibility and confidence of being able to decommission in similar environments; including the associated impacts. For example the two options presented involve dredging to no lower than 30cm below seabed, and in undertaking this activity there would almost certainly be disturbance to, or removal of, the interest features of the site. Where there is cobble/stony reef present, or *Sabellaria* reef, there would be habitat loss. We suggest that there needs to be some evidence presented where rock armouring has been decommissioned, in similar sediment types, and monitoring provided of the associated impacts. To date all the evidence presented to Natural England from OWF developers is that rock armouring cannot currently be feasibly removed. A good example of this issue is within Thanet OWF, where a section of cable under rock armouring needed to be replaced. It was determined that removing that hard substrate to access the cable wasn't feasible, so a new cable section was spliced in around the existing cable leaving the original section with protection in situ. See Natural England's 10 years of cable experience paper.	protection has been assessed as permanent/long-term to cover the 35 year design life of Hornsea Three. The post-decommissioning maximum design scenario assumed that cable protection would be left in situ.
5.9: Table 4.1 – Operation: Is there any guarantee that the O&M rock placement will only occur where it has been placed previously? Experience from similar projects is that further marine licence applications are submitted to address these concerns, but at that time unless the conservation objectives of the site were negatively impacted it is unlikely that such a request would be refused and therefore there is cumulative EIA impact occurring from further placement of rock armouring in the marine environment.	The maximum design scenario is for up to 10% of cable length to require rock armour; this is demonstrably precautionary as evidenced by the Applicant's clarification note – Cable Protection in Designated Sites, submitted by the Applicant at Deadline 1 (REP1-138). As such this is a robust basis of the assessment in the RIAA and the impact assessments presented within the relevant offshore topic chapters of the Environmental Statement. Replenishment refers to topping up of rock armour through the operational phase and such activity would not result in a greater proportion of the export cables being protected by rock armour, beyond the 10% assumed in the maximum design scenario.
5.10: Table 4.1 – operations: See comments in Annex D2 on Cable protection clarification note. Whilst the information presented provides a robust argument for WCS presented as being 10% of cable to be rock armoured within a designated site. It does not take into account site conditions with the Wash and North Norfolk coast and the presence of the rocky outcrop. It also does not take into account any secondary scouring that may happen.	The Applicant considers that the range of conditions in case study locations referred to in the Cable Protection Clarification Note (REP1-138) are relevant to the sites considered by the RIAA (APP-052) and refers the Ex.A to the Applicant's response to Natural England's comments on this clarification note in Annex D2 below.
5.11: Table 4.1 – Operation: No distinction about the location of the O&M repairs and how much will be within designated sites	Due to the nature of cable repairs during the operation and maintenance phase, it is not possible to predict where these may occur.

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	The effect of cable repair operations on the North Norfolk Sandbanks and Saturn Reef SAC and the Wash and North Norfolk Coast SAC, including clarification of the maximum design scenario within each SAC, is presented at paragraph 5.6.2.40 and paragraph 5.5.2.33, respectively, of the RIAA (APP-052).
5.12: Table 4.5: Avoidance of reef- the wording here does not tie in with the DML, which includes 'where possible'. This is not mitigation and uncertainty over the feasibility is not Habitat Regulations compliant. In Natural England relevant rep. for Norfolk Vanguard we highlighted the ability to micro site around any Annex I reef as a key concern and many of the points are relevant to this application too.	The Applicant refers the Ex.A to the comments in relation to Annex I Sabellaria reefs in the Applicant's response to Annex D4 (section 4: Reefs) of the Natural England Written Representation, above, including on the use of the highly precautionary 500 m buffers as suggested by JNCC. The Applicant maintains the position that there is adequate space within the Hornsea Three offshore cable corridor to allow for micrositing around Annex I reef features, avoiding those areas where Sabellaria reefs have most consistently been recorded (e.g. along the southern boundary of the offshore cable corridor). Avoiding the Annex 1 reef feature would be mitigation insofar as it avoids direct impact on that feature.
5.13: Table 4.5 and general comments: Lower quality reef is still reef and is therefore protected under the Habitat Regulations. Bisecting the periphery is still impact on reef feature and therefore recovery will need to be taken into consideration. This is particularly true of Cobble/stony reef. Even transitional areas are important to the ecosystem of geogenic reef. This is not considered at all in the justification.	The Applicant refers the Ex.A to the Applicant's response to Annex D4 (section 4: Reefs) of the Natural England Written Representation, above.
5.14: Table 4.5 and General Comment: We question what is meant by 'sensitive cable and scour protection' and why cable mattressing was so strongly dismissed. Cable protection and scour prevention should be assessed as part of the application as similar work has been done for Race Bank. Natural England and JNCC disagrees that the EWG discussed and agreed the different types of protection. It is equally not clear why EMF is being flagged to support the proposals when the preferred option for EMF is for burial to optimum depth.	As outlined in Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062), the Applicant is committed to employing sensitive cable and scour protection within designated sites. The precise details of these measures, e.g. the grading and volumes of rock protection required within designated sites, will be detailed in the Cable Specification and Installation Plan and the Scour Protection and Management Plan which will be produced prior to construction and agreed in consultation with statutory consultees. Further discussion of these is presented in the Cable Protection Clarification Note (Appendix 6 of the Applicant's response to Deadline I; REP1-138). The reduction of electromagnetic fields (EMF) and resultant induced electrical fields in the marine environment is mentioned as an additional conferred benefit of covering exposed cable, thus removing from the marine environment the strongest fields present at the cable surface (CMACS, 2003, A baseline assessment of electromagnetic fields generated by offshore wind farm cables. COWRIE Report 1.0 EMF - 01-2002 66)

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5.15: Table 5.1: Repeat of early comments in relation to the duration of the impacts from the placement of cable protection and what should be considered as construction vs operation in relation to the installation of the cables.	The Applicant refers the Ex.A to its response to 5.8, above.
5.16: Table 5.1: Maintain conversation objectives: there is currently a condition assessment underway for the W&NNC SAC and whilst the current conservation objective is down as maintain the impacts from the cable installation for RB and Lincs OWF is likely to change the favourable condition status of the site and therefore will have implications for the conservation objectives for the site.	The Applicant acknowledges this comment and would consider any further evidence which may emerge from Natural England to support the condition assessment for the SAC.
5.17: 5.4.2.3, 5.4.3 and 5.4.4: Please see Natural England position paper on the data requirement for sustainable development within designated sites.	The Applicant would welcome this paper if provided by Natural England; however, baseline characterisation surveys and related data collation were completed between 2016 and 2017 based on an Evidence Plan developed through close cooperation with an Expert Working Group including Natural England'
5.18: Table 5.4: As discussed in the MCZ Evidence Plan Working group – Natural England has concerns in relation to the reliance of the data sets from Sheringham Shoal OWF. The characterisation surveys to identify biotopes was undertaken in 2006 and since then there may be have been changes and there was limited overlap with the Hornsea Project 3 cable corridor and the boundary of the W&NNC SAC. In addition to this Natural England and CEFAS never support the preconstruction survey data as the ground truthing was completed during/after a winter storm and therefore there were no clear the DDV data that could be used to support the present/absence of habitats of ecological importance. Again we also reiterate the Dudgeon OWF data sets similarly were dated 2009 and do not cover the boundary of the W&NNC SAC. But we do recognise the potential usefulness of the Dudgeon and Sheringham datasets for EIA for the offshore areas.	The Applicant would refer the Ex.A to its response to Annex D7 of the Natural England Written Representation below.
5.19: Table 5.5: Natural England acknowledges it does include information specific to the W&NNC SAC.	The Applicant acknowledges the comment from Natural England that the baseline characterisation surveys include site specific data within the Wash and North Norfolk Coast SAC.
5.20: Figure 5.2: The HRA assessment does not include site specific characterisation data for last 6km-11km of the site heading out to sea. However, the clarification note provided on 9th October confirms that the biotope classifications used are correct. However, the surveys do not allay concerns about the ability to bury the cables to the optimum depth.	The Applicant refers the Ex.A to its response to the Natural England Offshore Wind Cabling paper (see summary above) and its response to Annexes D7 and D1 to Natural England's Written Representation below.

Interested Party's Written Representation	Applicant's Response
5.21: 5.4.5: It should be noted that the data sets presented on MAGIC are some distance from the HP3 cable corridor and have limited data points. Please see the points raised in our relevant representation – August 2018.	The Applicant would refer the Ex.A to its response to Annexes D7 and D1 of the Natural England Written Representation below.
5.22: Table 5.6: Please note that Natural England did not suggest the core reef approach that was included within the ES. We suggest looking at realistic WCS that demonstrated what the outcome would be should reef develop across part or all of the cable corridor with the NNS SAC. Please see Natural England position paper on Assessment on reef.	The Applicant refers the ExA to its response to Annex D4 (section 4: Reefs) of the Natural England Written Representation.
5.23: Table 5.6: We seek clarification as to where all the levelled material be deposited within the designated sites and in particular the W&NNC SAC. Please note that the nearshore sandbanks of the W&NNC SAC are not as mobile as those within the offshore sites and therefore recovery is likely to be very different. However, there has been no differentiation between the sandbank attributes and ability to recover. If the material is removed from the site then the maintain extent conservation object and potentially those relating to the form and function of the designated feature could be hindered. In addition impacts will need to be considered in combination with boulder clearance, grapnel, UXO clearance, rock placement and depositing of material.	The Applicant refers the Ex.A to its response to 5.7, above. The Applicant also refers the Ex.A to its response to Annex D3 of the Natural England Written Representation below, which addresses the comments in relation to the applicability of the evidence presented to the Wash and North Norfolk Coast SAC. The Applicant notes that while the environmental settings may vary across the areas of Hornsea Three where sandwave clearance may be required, the governing sediment transport processes responsible for formation of sandwaves and the recovery of sandwaves following clearance are the same. As such, there is high confidence that the assessment is applicable to all parts of Hornsea Three, noting that there may be variations in the recovery rates depending on the specific environmental setting, as outlined above.
5.24: 5.5.1.3: Natural England agrees that the surveys to date indicate that no Annex reef features have been confirmed as present, but equally have not been confirmed as absent either. The location and detail of the surveys means that reef could not be determined from them. Therefore it is not appropriate to infer that reef has never been present.	The Applicant also refers the Ex.A to its response to Annexes D1 and D7 of the Natural England Written Representation below.
5.25: 5.5.1.4: Natural England notes that the corridor width keeps changing between 25m -30m, and request that this is clarified. We also note that boulder clearance is mentioned but on quantified.	A 25 m corridor is consistently referred to in relation to boulder clearance. The 30 m corridor refers to the corridor for sandwave clearance (see Table 4.1, page 28 of the RIAA; APP-052).
5.26: 5.5.1.6: We are unclear as to whether mixed sediment or sandy gravel are present in this location.	This paragraph relates to the potential for presence of Annex I stony reef within the Hornsea Three benthic ecology study area and habitats are described in this context, not in relation to sub-features of Annex I sandbank habitat which we assume is the basis of the question. The Applicant also refers the Ex.A to its response to Annexes D1 and D7 of the Natural England Written Representation below.

Interested Party's Written Representation	Applicant's Response
5.27: 5.5.1.8: Evidence of export cable trenches at Sheringham Shoal, Dudgeon, Race Bank and Lincs which indicates that sediment is not infilling trenches as expected in the nearshore areas.	The RIAA states that natural redistribution of material is expected to partially restore the topography of the area. Moreover, the Applicant is committed to a programme of monitoring to confirm recovery levels post-construction. The Applicant would refer the Ex.A to The Wash and North Norfolk Coast SAC Clarification Note (REP1-140) which provides evidence with respect to infilling of cable trenches from Sheringham Shoal and Dudgeon, and the Applicant's response to the Natural England comments on this clarification note (Annex D1 to the Natural England Written Representation).
5.28: 5.5.1.10: Natural England notes that there is no differentiation between the offshore sandbanks at North Norfolk Sandbanks and those in the inshore that have very different characteristics.	The Applicant also refers the Ex.A to its response to Annex D3 of the Natural England Written Representation below, which addresses the comments in relation to the applicability of the evidence presented to the Wash and North Norfolk Coast SAC. The Applicant notes that while the environmental settings may vary across the areas of Hornsea Three where sandwave clearance may be required, the governing sediment transport processes responsible for formation of sandwaves and the recovery of sandwaves following clearance are the same. As such, there is high confidence that the assessment is applicable to all parts of Hornsea Three, noting that there may be variations in the recovery rates depending on the specific environmental setting, as outlined above.
5.29: 5.5.24: Survey data are not included in the assessment to support conclusions made.	This comment is unfounded. Site specific survey (and other characterising) data are widely referenced in the RIAA (APP-052) and supporting Environmental Statement documents. Paragraph 5.5.2.4 of the RIAA (APP-052) is simply a short summary of such data. The Applicant refers the Ex.A to its response to Annexes D1 and D7 of the Natural England Written Representation below.
5.30: 5.5.2.5: Natural England notes that the assessment of the impacts is again in relation to the whole site rather that specific interest features. WCS if all protection on one feature or another what would the impact be? This would help determine the level of risk to particular interest features. Natural England advises an assessment against the interest features of the site rather than the whole site The information presented also conflicts with the evidence being presented for Race Bank OWF marine licence variation and marine licence re the type of protection that can be used as similar grain size has been discounted as could be moved during a storm and does not provide sufficient protection again anchors and fisheries (Ref. WSP Remedial Burial Assessment – SJ20180628115546973). Equally we are concerned about the longevity/duration of the impact and recoverability depending on the interest feature of the site.	The Applicant refers the Ex.A to its response to Annexes D1 and D7 of the Natural England Written Representation below. The Applicant also refers the Ex.A to its response to Annex D2 (specifically response to section 3.15) of the Natural England Written Representation below, in response to the comments on the Race Bank application.

Interested Party's Written Representation	Applicant's Response
5.31: 5.5.2.6: Natural England notes that there is no distinction between sandbanks slightly covered by water all of the time in the offshore and those found within the nearshore.	The Applicant refers the Ex.A to the response to point 5.28 above.
5.32: 5.5.2.7: Natural England notes that there is no direct link to Natural England's conservation advice package for the site including an assessment against operations likely damage listed on our Designated Sites System and the Supplementary Advice on Conservation Objectives. Limited survey data for each of the features so unable to agree with the conclusions and it is unclear why impacts have been determined to be long term temporary when the impacts are likely to be persistent and removal at decommissioning is highly unlikely. The DDV data at the 5 locations included in the clarification note shows that 4-5 locations are more consolidated and therefore less mobile than other areas and have epifauna present.	Conservation Objectives and Advice are referenced in paragraphs 5.2.2 and 5.2.3 and summarised in Table 5.2 of the RIAA (APP-052). Potential impacts are summarised in Table 5.1 and linked to proposed activities in Table 5.3 of the RIAA. The Applicant acknowledges the site conservation advice packages (https://www.gov.uk/government/publications/southern-north-sea-marine-area-index-map-and-site-packages), including advice on operations. The RIAA assesses the potential effects on designated features of SACs in a manner which the Applicant believes to be consistent with the identified pressures and receptors detailed in the conservation advice packages. In relation to sub-features the Applicant refers the Ex.A to the Applicant's response to Annex D1 (specifically, point 4.3) of the Natural England Written Representation below.
5.33: Natural England does not agree with the determination of insignificant which is an EIA term. In relation to the habitat regulations the impacts are likely to in hinder the conservation objectives for the site hence the LSE test and the undertaking of the Appropriate Assessment to determine if the impacts are adverse or not. Also need to consider the marine licence variation request, the O&M licence and the marine licence application for the Race Bank project that are also proposed within the W&NNC SAC.	Whilst the term 'insignificant' has been used within the RIAA (APP-052) the conclusions are clearly made in terms of adverse effects on qualifying features and site integrity, as appropriate for a Habitats Regulations Assessment.
5.34: Natural England advises that there is insufficient detail presented in the HRA to demonstrate that coastal processes will not be impacted.	The effects on physical processes are assessed in paragraphs 5.5.2.23 and 5.6.2.24 of the RIAA (APP-052) for the Wash and North Norfolk Coast SAC and the North Norfolk Sandbanks and Saturn Reef SAC, respectively. These assessments draw on the impact assessment presented in section 1.11 of Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061) and in particular 1.11.8.80 et seq. which considers the implications of cable protection on marine processes in the nearshore area.
5.35: Only the sandbanks feature is present across the whole site	The Applicant acknowledges this comment and this is in line with the approach taken in the RIAA (APP-052).

Interested Party's Written Representation	Applicant's Response
5.36: Previously the figure given for temporary habitat loss for pre-construction sandwave clearance disposal activities was 2,880,000m2. It is unclear how this figure relates to the 1,239,400m2 in the table. It is also unclear whether sandwave clearance is likely to be to similar depths along the cable corridor, or if this will vary and why the dredged material is to be laid to a 0.5m thickness.	As set out in Table 5.7 of the RIAA (APP-052), the maximum design scenario for habitat loss/disturbance during cable installation assumes disturbance of a corridor of up to 30 m due to sandwave clearance. This is conservative assumption, as sandwave clearance will not be required in all areas, with smaller disturbance corridors of 25 m (for boulder clearance) or 15 m (for cable burial) in areas where sandwave clearance is not required. The 1,239,400 m2 figure relates to the temporary habitat loss/disturbance associated with disposal of material dredged during sandwave clearance. The maximum design scenario assumes disposal of up to 619,700 m3 from sandwave clearance, assuming dredged material to a uniform thickness of 0.5 m (for further details see Table 2.14 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement; APP-062).
5.37: We would like further information on where the boulders are likely placed – i.e. within the cable corridor or further away.	The process by which boulders are cleared prior to cable installation is described paragraph 3.6.2.12 et seq. of Volume 1, Chapter 3: Project Description of the Environmental Statement (APP-058). Where boulders are cleared, these will be retained within the offshore cable corridor and will only be displaced a number of metres from their original location.
5.38: We would like further information on whether anchor placements will be on both sides of the cable laying operations; how far out will they be, and how that relates to the temporary working area.	Anchor placement will occur within the offshore cable corridor and within the temporary working area (depending on where cables are to be laid). The exact location of anchors cannot yet be determined, although the Applicant would note that the mitigation measures outlined in Table 4.5 of the RIAA (APP-052) (specifically avoidance of direct impacts on Annex I reef features) will apply to anchor placement.
5.39: 5.6.1.5: Pre-construction sandwave clearance in NNS SAC – RIAA 5.7 – 2,880.000m2. The Marine Processes chapter states that the total volume that could be affected by sandwave clearance is presently estimated to be up to 1,202,956 m3 within the Hornsea Three offshore cable corridor, (based on the Hornsea Three offshore cable corridor geophysical survey data combined with cable installation design specifications). Of this total volume from the Hornsea Three offshore cable corridor, up to 619,689 m3 will be excavated from within the North Norfolk Sandbanks and Saturn Reef SAC. The Marine Processes chapter also states –that the volume of sediment in sandwaves to be cleared for installation of export cables in the Hornsea Three offshore cable corridor 979,090 m3. Total mass of sediment to clear from sandwaves in the Hornsea Three offshore cable corridor 1,556,753,100kg 979,090 m3 x 2,650 kg/m3 x 0.6 If dredging, only a fraction of this material will be released as dredge over-spill. The remainder will be deposited to the seabed nearby.	As set out in Table 5.7 of the RIAA (APP-052), the maximum design scenario for habitat loss/disturbance during cable installation assumes disturbance of a corridor of up to 30 m due to sandwave clearance. This is conservative assumption, as sandwave clearance will not be required in all areas, with smaller disturbance corridors of 25 m (for boulder clearance) or 15 m (for cable burial) in areas where sandwave clearance is not required. For temporary habitat loss/disturbance associated with disposal activities, the maximum design scenario is for disposal of up to 619,700 m3 from sandwave clearance, assuming dredged material to a uniform thickness of 0.5 m (for further details see Table 2.14 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement; APP-062).

Interested Party's Written Representation	Applicant's Response
5.40: The Applicant will need to ensure that possible outcomes are consistent with the natural processes and bedform configurations that are already present in the site and would not adversely affect the onward form and function of the individual bedform features, or the sandbank system as a whole [confidence: high confidence that the seabed will recover to a new natural equilibrium state within a timescale of months to years. However, any predictions of the actual local timescales of change, as well as the form of the 'new' features would have low-medium confidence].	The Applicant also refers the Ex.A to its response to Annex D3 of the Natural England Written Representation below.
5.4.1: 5.6.1.9: We refer the Applicant to Natural England's small scale effects report on site features (Chapman & Tyldesley, 2016).	The Applicant acknowledges this comment from Natural England.
5.42: 5.6.1.4, 5.6.2.7: With a restore objective, precluding the recovery of reef should not be considered acceptable nor the preclusion of establishment of sandbanks.	Paragraph 5.6.1.4 of the RIAA (APP-052) discusses temporary habitat loss/disturbance within the North Norfolk Sandbanks and Saturn Reef SAC. The assessment shows that any such effects will be temporary and reversible and will not preclude the establishment of sandbanks, with additional evidence (e.g. Sandwave Clearance Clarification Note; APP-183) providing further confidence in this conclusion. Section 5.6.2.7 of the RIAA acknowledges that the presence of cable protection within the North Norfolk Sandbanks and Saturn Reef SAC may serve as an ongoing barrier to the future establishment of Annex I reefs in discrete areas, however, these are highly limited areas in the context of the available habitat. It should be noted, however, that there is evidence for S. spinulosa colonising artificial substrates and the Applicant would refer the Ex.A. to the Cable Protection Clarification Note (REP1-138) which provides some evidence for this to support the evidence already presented within paragraph 5.6.2.7 of the RIAA.
5.43: 5.6.1.17: "When considering that this is inevitably an overestimate" – this is incorrect and needs to be changed. Impact will not be an overestimate on sandbanks.	The maximum design scenario (and the associated proportion of the Annex I habitat features of the north Norfolk Sandbanks and Saturn Reef SAC referred to in paragraph 5.6.1.17 of the RIAA) assumes a disturbance corridor of 30 m width, associated with sandwave clearance, in all areas of the SAC (see Table 5.7 of the RIAA; APP-052). This is conservative assumption, as sandwave clearance will not be required in all areas, with smaller disturbance corridors of 25 m (for boulder clearance) or 15 m (for cable burial) in areas where sandwave clearance is not required. As such, the statement that the proportion of the SAC affected (i.e. 0.26%) is inevitably an overestimate is accurate.
5.44: 5.6.2.11: Some of the conclusions are not evidenced and therefore cannot be advised upon.	The Applicant acknowledges this comment, although would disagree that the assessments are not evidenced as set out throughout the Applicant's response to the Natural England Written Representation and Annexes D1 to D7.

Interested Party's Written Representation	Applicant's Response
5.45: 5.6.2.30: We are pleased that The Applicant has considered JNCC (2017) and also provided details about sediment movement over cable protection.	The Applicant acknowledges the comment from Natural England and JNCC on this point. The Applicant would also refer the Ex.A to the Cable Protection Clarification Note (Appendix 6 of the Applicant's response to Deadline I; REP1-138) which provides additional evidence to support this.
5.46: 5.6.2.41: Natural England seek further clarification as to whether the differences in mobility among sandbanks will be accounted for in the cable protection plan.	The Applicant is confident in the maximum design scenario assessed within the Environmental Statement and the RIAA (APP-052) with respect to cable protection within designated sites. The Applicant refers the Ex.A to the Cable Protection Clarification Note (Appendix 6 of the Applicant's response to Deadline I; REP1-138) which provides justification of this.
5.47: 5.6.2.41: We are unsure of the assumption here – that percentage of cable protection will equal percentage of the route within NNS. Presumably a larger proportion of mobile elements are in the site than outwith it. We suggest that The Applicant provide a range of values here for the percentage of total loss.	The Applicant is confident in the maximum design scenario assessed within the Environmental Statement and the RIAA (APP-052) with respect to cable protection within designated sites. The Applicant refers the Ex.A to the Cable Protection Clarification Note (Appendix 6 of the Applicant's response to Deadline I; REP1-138) which provides justification of this.
5.48: 5.6.2.43: We advise against considering different stages of life span alone. It is important that impacts are assessed holistically.	See the Applicant's Deadline 2 comments on Natural England's Deadline 1 response to Ex.A question 1.2.2.
5.49: 5.7.3.3: O&M impacts cannot be lost from in-combination analysis.	See the Applicant's Deadline 2 comments on Natural England's Deadline 1 response to Ex.A question 1.2.32.
5.50: Table 5.12: Area 483 is now operational.	Noted. At the time of submission, Area 483 was an application area and was included as such (i.e. a Tier 2 project) in the in-combination assessment (see Table 5.12 of the RIAA; APP-052). The Applicant would note however that reassigning Area 483 from Tier 2 to Tier 1 would not result in a change to any of the assessments of significance of effect presented in section 5.9 of the RIAA.
5.51: 5.8: In-combination impacts need to include Race Bank marine licence variation, O&M licence and marine licence application.	Natural England's comments regarding the Race Bank offshore wind farm marine licence applications/variation are noted but the Applicant would highlight that the application documents were not available at the time of the DCO submission in May 2018. The Applicant will, however, provide an update to the in-combination assessment at Deadline 3.
5.52: 5.9.2: Long term loss seems to have been excluded here. This needs correcting.	Long term/permanent habitat loss is considered in paragraph 5.9.3.1 et seq. of the RIAA (APP-052).

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5.53: Table 5.13: Area 483 and 484 should be considered permanent loss given loss of sediment from the system.	Aggregate extraction areas are considered as temporary habitat loss, because although sediment is removed from the system, the seabed habitats (i.e. qualifying features of the SAC) will recover over a period of time. This is in line with the assessments presented within the relevant offshore topics of the Hornsea Three Environmental Statement and is also consistent with relevant assessments undertaken in support of aggregate extraction licence applications. Furthermore, this is in accordance with the Supplementary Advice on Conservation Objectives for the North Norfolk Sandbanks and Saturn Reef SAC which states that "*this activity operates in such a way as to ensure that the distribution of surface sediments is not changed and so the feature's extent would remain unimpacted*".
5.54: 5.10: Natural England can agree with the conclusions on p 111.	The Applicant acknowledges the comment by Natural England and would refer the Ex.A to the summary response to this Annex above in relation to adverse effects on integrity.
5.55: Table 5.15: Natural England is unable to agree with the conclusions.	The Applicant acknowledges the comment by Natural England and would refer the Ex.A to the summary response to this Annex above in relation to adverse effects on integrity.
5.56: General Comment: There is no consideration of the energy and exposure and the potential considerable reduction in water depth if rock armouring is used. It would be useful to understand this in more detail.	The effects of potential cable protection measures on physical processes is assessed in paragraphs 5.5.2.23 and 5.6.2.24 of the RIAA (APP-052) for the Wash and North Norfolk Coast SAC and the North Norfolk Sandbanks and Saturn Reef SAC, respectively. These assessments draw on the impact assessment presented section 1.11 of Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061) and in particular 1.11.8.80 et seq. which considers the implications of cable protection on marine processes in the nearshore area.

Response to Annex D6 (REP1-125) of Natural England's Written Representation

Interested Party's Written Representation	Applicant's Response
1. Cromer Shoal Chalk Beds MCZ	The Applicant refers the Ex.A to the Applicant's response to paragraph 5.4.5 of Natural England's Relevant Representation as submitted at Deadline I (REP1-131). Here the Applicant details how feedback received from Natural England, and other consultees, during Section 42 consultation resulted in a re-route of the Hornsea Three offshore cable corridor in the nearshore area which substantially reduced the length of offshore cables within the Cromer Shoal Chalk Beds MCZ from 13.9 km to 1 km, with considerable reductions in habitat loss effects during construction (i.e. temporary habitat loss) and operation and maintenance phases (i.e. long term habitat loss from cable protection measures). Section 4.2 of Volume 5, Annex 2.3: MCZ Assessment of the

Interested Party's Written Representation	Applicant's Response
	Environmental Statement (APP-104) describes in full the characterisation of the part of the Hornsea Three offshore cable corridor that coincides with the Cromer Shoal Chalk Beds MCZ which was based on site-specific geophysical, benthic grab and drop down video sampling and supplemented with desktop data sets for the wider area. The part of the Hornsea Three offshore cable corridor that coincides with the Cromer Shoal Chalk Beds MCZ was found to be characterised by sandy sediments and associated communities represented by the SS.SSa.IFiSa.NcirBat, biotope which qualifies as the Subtidal Sand broadscale habitat feature of the MCZ. In the small areas identified from the geophysical data as subcropping rock, increased proportions of mixed coarse sediments were recorded, however these were limited in extent and patchy with extensive areas of rippled sand separating these discrete areas. As such, these discrete areas of mixed, coarse sediments were not in large enough areas to map. The recoverability of the communities associated with the Subtidal Sand broadscale habitat feature are outlined in paragraph 5.1.2.18 et seq. of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement and the Applicant would highlight that there is significant empirical evidence to support the prediction that these communities will recover as outlined in the Applicant's response to Q1.2.10 as submitted by the Applicant at Deadline I. All impacts to this feature of the MCZ (with the exception of long-term/permanent habitat loss associated with cable protection; discussed below) including effects on coastal processes, will therefore be temporary and reversible. With respect to the effects of long-term/permanent habitat loss associated with cable protection, the Applicant refers the Ex.A to the Applicant's consultation response on the draft conservation advice package published by Natural England for the Cromer Shoal Chalk Beds MCZ (at Appendix 9 to the Applicant's response to Deadline 2). The Applicant's consultation response highlights that the Cromer Shoal Chalk Beds MCZ draft conservation advice package implies that any introduction of rock protection within the MCZ would significantly hinder the conservation objectives of the site. However, the Applicant would highlight that this advice is not consistent with conservation advice packages from other MCZ sites, with many of the same broadscale habitat features as the Cromer Shoal Chalk Beds MCZ. This includes examples where existing cable and/or pipeline protection was present at the time of designation and projects which have been consented since MCZ designation have included rock protection for cables/pipelines. These sites, which provide precedent for the introduction of cable protection without significantly hindering the conservation objectives of the site, include the Offshore Brighton MCZ, Offshore Overfalls MCZs (both of which were affected by the IFA2 interconnector), Holderness Inshore MCZ and the West of Walney MCZ. In the case of the IFA2 interconnector, the maximum cable protection volumes and areas of designated features affected within both MCZs were considerably greater than the maximum design parameters for Hornsea Three within the Cromer Shoal Chalk Beds MCZ. The IFA2 MCZ assessment conclusion was that this did not hinder the achievement of the conservation objectives, despite the affected features within both MCZs being in an unfavourable condition, with a 'recover' conservation objective for these features.

Interested Party's Written Representation	Applicant's Response
	The Applicant therefore maintains the position that a Stage 2 MCZ assessment is not required for the Cromer Shoal Chalk Beds MCZ. This is due to the very small proportion of designated features affected, with the majority of impacts are temporary and reversible, with good recovery potential from the one feature directly affected (i.e. Subtidal Sand). Longer lasting effects will affect a very small (i.e. <0.02%) proportion of the Subtidal Sand feature of the MCZ, and only in the event that cable protection is required.
2. Markham's Triangle pMCZ	The Applicant notes the Natural England and JNCC comments regarding the assessment of total impacts throughout the lifetime of the project. The Applicant's position remains that a comprehensive assessment of project lifetime effects within Markham's Triangle proposed Marine Conservation Zone (pMCZ) has been undertaken and is clearly presented in both Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (APP-104) and Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062). However, to assist, the Applicant would be able to submit a clarification to the Ex.A on this for Deadline 3, in a similar manner as done in the Applicant's response to Q1.2.103 as submitted at Appendix 17 to the Applicant's response to Deadline I (REP1-178). The Applicant also notes Natural England's comment regarding the level of activity proposed by the project within Markham's Triangle pMCZ and has been working to identify where conservatism in the assessment and design envelope could be reduced. The Applicant is pleased to be able to confirm to the Ex.A and Natural England/JNCC that the result of this work is that the maximum design scenario for infrastructure to be installed within Markham's Triangle pMCZ has been reduced from 24% to 10.5%. The implications of this reduction in design envelope are substantial for the predicted extents of temporary and long-term/permanent habitat loss within Markham's Triangle pMCZ. Table 1 summarises the maximum design scenario for each broadscale habitat as presented in Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (APP-104) based on the assumption that 24% of all array infrastructure could be placed in the part of the Hornsea Three array area which overlaps with the Markham's Triangle pMCZ. Table 2 presents the revised extents of habitat loss based on the proposed reduction in design envelope to 10.5%. It should be noted that, as explained in paragraph 5.2.2.8 of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement, the maximum design scenario for Subtidal Coarse Sediment assumes that, due to the extensive distribution of this habitat within the pMCZ, all habitat loss effects could theoretically occur entirely within this feature (i.e. all infrastructure within the pMCZ could be placed only in this feature). This is the reason why the maximum design scenario for this habitat feature is identical to the total habitat loss across the entire site (i.e. the maximum design scenarios for the three broadscale habitat features are not additive, but represent the maximum design scenario for each broadscale habitat individually). As Subtidal Sand extends over approximately 10.6% of the area of the Markham's Triangle pMCZ coinciding with the Hornsea Three array area, it is assumed that 10.6% of the maximum temporary habitat loss/disturbance could occur within this habitat. As Subtidal Mixed Sediment extends over approximately

<table>
<tr><th>Interested Party's Written Representation</th><th>Applicant's Response</th></tr>
<tr><td></td><td>12.95% of the area of the Markham's Triangle pMCZ coinciding with the Hornsea Three array area,12.95% of the maximum temporary habitat loss/disturbance could occur within this habitat.

Table 1: Areas (m2) and proportions of the broadscale habitat features of Markham's Triangle pMCZ affected across the lifetime of Hornsea Three, as presented in Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (based on 24% of array infrastructure being located within the site).
<table>
<tr><th></th><th>Area (m2) and % of total habitat</th><th>Area (m2) and % of Subtidal Coarse Sediment feature affected</th><th>Area (m2) and % of Subtidal Sand feature affected</th><th>Area (m2) and % of Subtidal Mixed Sediment feature affected</th></tr>
<tr><td>Temporary habitat loss (construction)</td><td>5,872,589 (2.94%)</td><td>5,872,589 (4.03%)</td><td>624,016 (2.37%)</td><td>760,787 (2.76%)</td></tr>
<tr><td>Long term habitat loss (O&M)</td><td>682,196 (0.34%)</td><td>682,196 (0.47%)</td><td>72,490 (0.28%)</td><td>88,378 (0.32%)</td></tr>
<tr><td>Temporary habitat loss (O&M)</td><td>1,625,776 (0.81%)</td><td>1,625,776 (0.81%)</td><td>172,753 (0.66%)</td><td>210,617 (0.76%)</td></tr>
<tr><td>Permanent habitat loss (decommissioning)</td><td>543,148 (0.27%)</td><td>543,148 (0.37%)</td><td>57,714 (0.22%)</td><td>70,364 (0.26%)</td></tr>
</table>
Table 2: Areas (m2) and proportions of the broadscale habitat features of Markham's Triangle pMCZ affected across the lifetime of Hornsea Three based on a revised design envelope of 10.5% of array infrastructure being located within the site.
<table>
<tr><th></th><th>Area (m2) and % of total habitat</th><th>Area (m2) and % of Subtidal Coarse Sediment feature affected</th><th>Area (m2) and % of Subtidal Sand feature affected</th><th>Area (m2) and % of Subtidal Mixed Sediment feature affected</th></tr>
<tr><td>Temporary habitat loss (construction)</td><td>3,914,975 (1.96%)</td><td>3,914,975 (1.96%)</td><td>416,002 (1.58%)</td><td>507,180 (1.84%)</td></tr>
<tr><td>Long term habitat loss (O&M)</td><td>300,660 (0.15%)</td><td>300,660 (0.15%)</td><td>31,948 (0.12%)</td><td>68,950 (0.14%)</td></tr>
<tr><td>Temporary habitat loss (O&M)</td><td>716,518 (0.36%)</td><td>716,518 (0.49%)</td><td>76,137 (0.29%)</td><td>92,824 (0.34%)</td></tr>
<tr><td>Permanent habitat loss (decommissioning)</td><td>239,378 (0.12%)</td><td>239,378 (0.12%)</td><td>25,436 (0.10%)</td><td>31,011 (0.11%)</td></tr>
</table></td></tr>
<tr><td>2.7: We note that cable and scour protection within Markham's Triangle will be designed to consider the local baseline conditions. Any rock protection used in this area may be limited to an average grain size of 100 mm to a maximum</td><td>The Applicant notes Natural England and JNCC's comments regarding scour and cable protection and would highlight that detailed project design information is not available at this stage and that full details of this information will be detailed in the Cable Specification and Installation Plan and the Scour Protection and Management Plan which will be</td></tr>
</table>

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grain size of 250 mm. We question how likely this mitigation is to be practicable, and whether the likelihood will vary among features – could use of <250mm sediment not provide enough stabilisation in mixed sediments?	produced prior to construction and agreed in consultation with statutory consultees.
2.8: There is also discussion of shell debris resulting from settlement on turbine foundations providing a secondary substrate for the attachment of other epifaunal species (Norling and Kautsky, 2007), leading to coarser, shell-dominated sediment and enriched structure diversity. We would expect the applicant to consider the implications for this change in habitat type within their assessment of impact on conservation objectives	The implications of this impact are considered within the assessment of colonisation of offshore foundations and scour and cable protection within Markham's Triangle pMCZ as presented in paragraph 5.2.3.22 et seq. of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (APP-104). This includes consideration of localised changes to benthic habitats from shell debris as noted in Natural England and JNCC's comment. The conclusion of this assessment considers that any changes would be highly localised to the immediate vicinity of the offshore structures within the Hornsea Three array area (see paragraph 5.2.3.28 of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement).
3. Detailed comments	
3.1 Section 3.3: Based on evidence from other OWF in relation to cable installation through similar interest features Natural England challenges the assumptions that the required movement of sediment and excavation would result in temporary habitat loss/disturbance and long term habitat loss over the lifetime of the protect. Without removal of cable protection at decommissioning the impacts are likely to persist and, depending on the location, may hinder the conservation objectives of the designated sites. Currently there is no guarantee of removal. The documents provided for the current Race Bank marine licence application includes two options for rock armouring removal that involve dredging up the material. The document provided was purely a method statement and did not take into consideration the feasibility and confidence in being able to decommission in similar environments, including the associated impacts. For example the two options presented involve dredging to no lower than 30cm below seabed, and in undertaking this activity there would almost certainly be disturbance to, or removal of, the interest features of the site. Where there is cobble/stony reef present, or *Sabellaria* reef, there would be habitat loss. We suggest that there needs to be some evidence presented where rock armouring has been decommissioned, in similar sediment types, and monitoring provided of the associated impacts. To date all the evidence presented to NE from OWF developers is that rock armouring	Natural England's comment is noted but the Applicant would highlight that the maximum design scenario for Hornsea Three assumes that cable protection will remain in situ after decommissioning. The Applicant directs Natural England and the Ex.A to paragraph 5.1.4.4 et seq. of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (APP-104) where an assessment of permanent habitat loss resulting from cable protection being in situ after decommissioning has been made. The Applicant will be required to developing a Decommissioning Plan to cover the decommissioning phase, which will take account of the latest guidance and advice from stakeholders at the time.

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cannot currently be feasibly removed. A good example of this issue is within Thanet OWF, where a section of cable under rock armouring needed to be replaced. It was determined that removing tat hard substrate to access the cable wasn't feasible, so a new cable section was spliced in around the existing cable leaving the original section with protection in situ. See Natural England's Cable Protection paper (2018).	
3.2 Section 4.2.1.2: As discussed during the evidence plan process Natural England has limited confidence in use of the Dudgeon and Sheringham Shoal pre construction data for within the MCZ. Therefore we advise against the over reliance on these data sets. The reasons for this are: • Applications were submitted pre MCZ so didn't take into account the features • The age of the Characterisation data for these projects are 10+ years old; • the pre-construction data for Dudgeon only focused on specific area of habitat of ecological importance • the pre-construction data set for Sheringham shoal was taken after a storm and therefore no conclusions could be drawn from them.	As outlined in paragraph 4.2.1.2 of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (APP-104), the characterisation of the nearshore area of the Hornsea Three offshore cable corridor coinciding with the Cromer Shoal Chalk Beds MCZ was based on Hornsea Three site-specific geophysical, benthic grab and drop down video surveys undertaken by the Applicant. Desktop data sources, including those for Dudgeon and Sheringham offshore wind farms were only used to provide context to the project specific data.
3.3 Section: 4.2.1.4 and 4.2.1.5: Natural England reiterates the higher level conservation objectives for the site to maintain the interest feature in as yet to be determined favourable condition.. We disagree with the applicants conclusions as we question if the proposal will achieve the conservation objectives of the site in order to maintain favourable condition.	The Applicant refers the Ex.A to their response to Natural England and JNCC's general comments on the Cromer Shoal Chalk Beds MCZ assessment above.
3.4 Sections 4.2.1.11, 4.2.1.12, 4.2.1.13 & Figure 4.3: The geophysical data in relation to subcropping rock indicates that there is only a thin veneer of sand and that any cable installation works in this area would be challenging and almost certainly cable protection would be required. The Drop Down Video (DDV) also indicated that there was an increase in gravel, cobbles, and occasional boulders in these areas (not dissimilar to that of the Wash and North Norfolk Coast DDV Survey 2018). Therefore Natural England believe that	The Applicant highlights that, for cable burial, a range of methodologies and tools have been considered, including pre-trenching and rock cutting which can be used to install cables in stiff clays and soft rock. The Applicant therefore does not agree that there is a higher likelihood of cable protection being required in the areas of subcropping rock within the Cromer Shoal Chalk Beds MCZ and would refer the Ex.A to the Applicant's Deadline I response to the Ex.A question Q1.2.4 (REP1-122).

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there is a higher likelihood of requiring cable protection, and ground preparation works and that there is a lesser likelihood of recoverability.	
3.5 Section 4.2.1.14: Circalittoral Rock is still important and rare. Natural England has undertaken a review of protected Chalk in English waters and found it not only be rare but also to be different in each location.	Comment noted however Moderate and High Energy Circalittoral Rock features are coincident with the Subtidal Chalk feature and as such, any consideration of the Subtidal Chalk habitat Feature of Conservation Interest (FOCI) also implicitly considers these two Circalittoral Rock features. No direct impacts on these features are predicted due to Hornsea Three.
3.6 Table 5.1: Natural England is surprised by the outcome of the matrices as having either no pathway or no significant effect especially, for example, 'extent and distribution' and 'sediment composition' of mixed sediment. We have had insufficient time to undertake our own assessment, but would be happy to advice BEIS directly on the stage 1 assessment. The question here is whether only sand will be impacted. If subcropping rock is removed by the creation of the exit pits it may have impacts on reinstatement and hinder the conservation objectives for the site due to changes in sediment budgets.	As per the Applicant's response to Natural England comments on the Cromer Shoal Chalk Beds MCZ assessment above, the Hornsea Three site specific surveys identified that the area of the offshore cable corridor coincident with the Cromer Shoal Chalk Beds MCZ was characterised by sandy sediments and associated communities represented by the SS.SSa.IFiSa.NcirBat, biotope which qualifies as the Subtidal Sand broadscale habitat feature of the MCZ within only very small areas of mixed coarse sediments which were too small to map. Therefore, it is correct that only Subtidal Sand will be directly impacted by Hornsea Three. A full assessment of the potential impacts of the excavation of exit pits on features of the Cromer Shoal Chalk Beds MCZ is presented in paragraphs 5.1.2.12 et seq. of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (APP-104).
3.7: Table 5.2 and 5.1.2.8: There is no mention of the creation of 8 cofferdams and potential need for protection because trenching is considered the worst-case scenario as the impacts occur over a much larger area. However, it should be recognised that although the scale of the impact would be restricted to a much smaller area in the 8 cofferdam scenario, the impact on that smaller area could be of a significantly greater magnitude. Equally the impacts associated with the jack up barges are considered in the context of sandy habitats where there is a rapid recovery if a less resilient feature were to be subjected to the same pressure.	The Applicant refers the Ex.A to the Applicant's response to paragraph 5.4.9 of Natural England's Relevant Representation as submitted at Deadline I (REP1-131) where it is explained that paragraph 5.1.2.8 of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (APP-104) considers impacts associated with horizontal directional drilling (HDD) activities. Therefore, effectively two maximum design scenarios for temporary habitat loss/disturbance in the nearshore area have been assessed (i.e. one for open cut trenching and one for HDD). As per the Applicant's response to Natural England comments on the Cromer Shoal Chalk Beds MCZ assessment above, the Hornsea Three site specific surveys identified that the area of the offshore cable corridor coincident with the Cromer Shoal Chalk Beds MCZ qualifies as the Subtidal Sand broadscale habitat feature. Therefore, it is correct that jack-up barge impacts will occur only in this broadscale habitat feature
3.8 Sections 5.1.2.12: Natural England agree that the presence of cofferdams would affect sediment transport to the North Norfolk Coast that is dependent on sediments from the offshore sandbanks.	The Applicant would refer the Ex.A to paragraph 5.1.2.17 of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (APP-104) where the assessment concludes that potential impacts to sediment movement as a result of the presence of cofferdams would be highly localised, temporary and reversible such that sediment transport systems within and around the Cromer Shoal Chalk Beds MCZ will be maintained. It is not suggested or assessed that the temporary, localised and reversible effect of cofferdams will result in measurable effects on sediment supply or morphology elsewhere.
3.9	The Applicant directs the Ex.A to paragraph 5.1.2.3 of Volume 5, Annex

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5.1.2.13 and 5.1.2.16: It is not clear if all the exit pits will be dug simultaneously or sequentially. If sequentially then there will be impacts for between 4 and 16 months. At 5.1.2.16 it say two cofferdam could be in place at the same time with an expectation that the other two would follow immediately after. This would mean 8 months of impacts which is a concern if it impacts on natural coastal deposition and exacerbates the effects of storm events. Also it is not clear if the 4 months include cable pull through. Phrases such as 'largely unaffected' 'limited blockage' have been used but these have not been qualified in the assessment.	2.3: MCZ Assessment of the Environmental Statement (APP-104) where it is explained that the duration of export cable installation will be up to three years undertaken over up to two phases. As outlined in paragraph 5.1.2.16 of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement, the maximum design scenario assumes that up to two cofferdams may be in place simultaneously for up to four months during HDD operations, although it is possible that up to four cofferdams may be present for a period of a few days.. Therefore, there is the potential for exit pits to be dug both simultaneously and sequentially. Each of the HDD exit pits may be open for up to four months (which consists of: up to one month site setup (including pit excavation); up to two months pit fully open, drilling & duct pull-in happening; and up to one month reinstatement (including backfill). An assessment of the presence of cofferdams cofferdams causing changes in seabed/ beach morphology is provided in paragraph 1.11.7.5 onwards of Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061) and Section 6.4.5 of Volume 5, Annex 1.1: Marine Processes Technical Report of the Environmental Statement (APP-101), which are used to inform the MCZ Assessment. As discussed above, it is assessed that the effect of the cofferdams will be temporary, localised and reversible. These effects are small in comparison to the range of natural variability and so cannot be reliably quantified in more detail, but are consistent with the conclusions of the assessment, and summary phrases such as 'largely unaffected' and 'limited blockage'.
3.10: 5.1.2.14: Natural England advises that the exit pits avoid the intertidal area as there is Chalk present that, although outside the boundary of the designated site, still qualifies for designation and is considered of local importance.	The design envelope includes for exit pits to the located between 200 m and 800 m from mean high water springs. The Applicant would however highlight that no chalk was recorded within the intertidal area during the Hornsea Three site-specific survey (see section 2.7.2 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement; APP-062).
3.11 Section 5.1.2.17 and 5.1.2.24: The advice that Natural England provided in it's Relevant Representation remain unchanged and these have been expanded on in the detailed comments. In summary Natural England questions the conclusions of the MCZ assessment for the Cromer Shoal Chalk Beds and believes there is sufficient uncertainty in relation to the impacts to the features and coastal processes, and recoverability of the features, to have limited confidence in the Stage 1 conclusion that there will be no significant risk of Hornsea Project Three hindering the achievement of the conservation objectives for the site. Natural England believes that a stage two assessment is therefore required to ensure that impacts are fully considered and that Measures of Equivalent Environmental Benefit (MEEB) are identified where applicable.	The Applicant refers the Ex.A to their response to Natural England/JNCC's general comments in Section 1 above on the Cromer Shoal Chalk Beds MCZ assessment above.

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If MEEB is not considered at the time of application and the preconstruction surveys subsequently identify that the conservation objectives for the site are hindered, then there would be significant delays to the project whilst MEEB is agreed and delivered. It would unlikely at that stage that a full range of mitigation option could be considered as the project design would be fixed. As this is not a European designated site we would also expect that retrospective MEEB is applied if the impacts are greater than those predicted pre-construction. We believe that each of these scenarios is highly probable and would need to be informed by a robust monitoring programme.	
3.12: Section 5.1.3.12: It is not clear from the MCZ assessment if cable protection for suboptimal buried cables (including around exit pits/jointing bays) is part of the construction or operational phase. This is raised in Natural England comments on other sections. Based on what is currently occurring at the Race Bank project, the protection of sub- optimally buried cables is the responsibility of the construction team in Ørsted. Therefore on that basis, Natural England believes that cable protection is part of the construction phase and the O&M activities are for subsequent repairs of previously laid protection. With the potential for 10% of the cable with the MCZ to have cable protection, Natural England is concerned that this will hinder the conservation objectives of the site. Equally there has been no cable burial risk assessment that considers the significant reduction in water depth in placed in the nearshore water and what this may do to coastal processes.	Effects resulting from the placement of cable protection in the Cromer Shoal Chalk Beds MCZ leading to long term habitat loss have been assessed in section 5.1.3 'Operational and Maintenance Phase' of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (APP-104). The Applicant would argue that whether the assessment sits in the construction or operational phase is irrelevant from the perspective of the benthic ecology, on the basis that the maximum design scenario has assessed the presence of cable protection for the 35 year design lifetime of the project. With respect to Natural England's comment regarding cable protection hindering the conservation objectives of the site, the Applicant would refer the Ex.A to their response to Natural England/JNCC's general comments in Section 1 on the Cromer Shoal Chalk Beds MCZ assessment above. Here it is outlined that the Applicant considers there is a precedent for the introduction of small volumes of cable protection in other MCZs without the conservation objectives of the sites being significantly hindered. Therefore, the Applicant points out that Natural England's advice for the Cromer Shoal Chalk Beds MCZ is not consistent with conservation advice packages for other MCZ sites, including MCZs which are currently in unfavourable condition with a 'recover' conservation objective (in contrast to the Cromer Shoal Chalk Beds MCZ 'maintain' conservation objective).
3.13: Section 5.1.3.13: Natural England agrees that repairs and reburial will only have temporary impacts. However, we do not agree that the placement of cable protection is only a temporary impact. The rock will continue to persist over the lifetime of the project and unless removed at decommissioning the impacts will continue beyond the lifetime of the project. Please see Natural England's comments on the cable protection clarification note and HRA assessment as the advice contained therein is also relevant here. Especially as based on the	The Applicant would take the opportunity to clarify to Natural England and the Ex.A that the assessment presented in paragraph 5.1.3.13 of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (APP-104) relates only to temporary habitat disturbance associated with export cable remedial burial and cable repair operations. The Applicant can confirm that this assessment does not include the replenishment of cable protection, as this is assessed as a long-term impact in paragraph 5.13.1 et seq. of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (i.e. replenishment would only affect areas previously affected by placement of cable protection). Furthermore, the potential persistence of permanent habitat loss beyond the decommissioning phase as a result of cable protection being left in situ is fully assessed as the maximum design scenario in paragraph 5.1.4.4 et seq. of Volume 5, Annex 2.3: MCZ Assessment of the Environmental

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evidence provided by the Race Bank OWF project we do not believe that decommissioning will be possible. And if, as proposed by Race Bank, dredging is used then there is a high probability that the interest feature of the site will also be removed.	Statement.
3.14: Section 5.1.3.16- 5.1.3.21: Whilst it is true that hard substrate used to be naturally more prevalent in the North Sea, this is not the recent or current situation and is not a justification that anthropogenic introduction of hard substrate, and any associated changes to the fauna, are acceptable. Consideration should be given to the interest features of that particular area.	The Applicant refers the Ex.A to their response to paragraph 3.8 of Annex D4 of Natural England's Written Representation above. The Applicant agrees that the historical distribution of hard substrate in the North Sea does not justify the addition of cable protection material. The Applicant would however also point out that this argument was not made within Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (APP-104).
3.15: Section 5.1.3.18: Please see comments on the cable protection clarification note. Based on the recent evidence from the Race Bank OWF, Natural England does not believe that 'sensitive' cable protection will be possible at this location.	The Applicant refers the Ex.A to their response to Annex D2 of Natural England's Written Representation below for a full response to this comment.
3.16 Section 5.1.2.22-5.1.3.29: Natural England would expect that there would be a pre-construction requirement to provide a detail plan to avoid the spread of Invasive Non Natives.	As outlined in paragraph 5.1.3.25 of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (APP-104), a Biosecurity Plan will be produced for Hornsea Three and agreed in consultation with statutory consultees, which will detail how the risk of potential introduction and spread of invasive non-native species will be minimised.
3.17: Section 5.1.4.2: Natural England agrees that, depending on the interest feature, decommissioning the cables is unlikely to pose a significant risk to the interest features of the site. But as discussed previously the decommissioning of any protection could impact site integrity. Therefore there would need to be an updated assessment at that time.	As noted in response to Natural England's Point 3.1 above, the maximum design scenario assumes that cable protection may be left in situ following decommissioning and as such an assessment of effects associated with permanent habitat loss have been fully assessed in paragraph 5.1.4.4 et seq. of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (APP-104).
3.18: Section 5.1.4.4 – 5.1.4.8: As set out previously Natural England has concerns about the persistent nature of cable protection with the designated site. We also do not believe that 'sensitive' cable protection that is representative of local particle size will be feasible at this location.	The Applicant refers the Ex.A to their response to Annex D2 below of Natural England's Written Representation for a full response to this comment.
3.19 Section 5.1.5: Please note that there are cumulative impacts occurring with pipeline protection works for the Bacton terminal that will need to be considered in-combination. Natural England did not support the introduction of cable protection for those proposals.	The Applicant would highlight that the Bacton terminal pipelines were in place at the time that the Cromer Shoal Chalk Beds MCZ was designated and must have therefore been considered as part of the baseline. As outlined in paragraph 5.1.5.3 of Volume 5, Annex 2.3: MCZ Assessment of the Environmental Statement (APP-104), at the time that the DCO for Hornsea Three was submitted in May 2018, there was no detailed information in the public domain relating to the impact the

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	Bacton Gas Terminal Coastal Defence Scheme would have on features of the Cromer Shoal Chalk Beds MCZ. Therefore, it was not possible to consider the cumulative effects of the Bacton Gas Terminal Coastal Defence Scheme with Hornsea Three. The Applicant therefore seeks clarification from Natural England on which Bacton terminal projects it considers should be included in the cumulative effects assessment for the Cromer Shoal Chalk Beds MCZ and whether sufficient information is publically available to allow such assessment.
3.20: Section 5.1.6 and 6: Natural England questions the conclusions for the above reasons. We believe that there is sufficient uncertainty in relation to the impacts to the features and coastal processes, and recoverability of the features to have limited confidence in the Stage 1 conclusion that there will be no significant risk of Hornsea Project Three hindering the achievement of the conservation objectives for the Cromer Shoal Chalk Beds MCZ.	The Applicant refers the Ex.A to their response to Natural England/JNCC's general comments in Section 1 above on the Cromer Shoal Chalk Beds MCZ assessment above.

Response to Annex D1 (REP1-210) of Natural England's Written Representation

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2. Additional Survey Data	The Applicant notes Natural England's comment in relation to the information presented within Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) and welcomes Natural England's review and consideration of the results of the drop down video survey of the Hornsea Three offshore cable corridor that coincides with The Wash and North Norfolk Coast SAC. The Applicant is pleased to note that, as per their comment in paragraph 2.5, Natural England accept that the drop down video survey is acceptable for the purposes of characterisation and that they agree that the habitats present do not constitute Annex I reef. The Applicant notes the comments in relation to geophysical and geotechnical datasets for this area and, on this point, the Applicant would refer the Ex.A and Natural England to their response to Annex D7 of Natural England's Written Representation above (REP1-117). The Applicant refers the Ex.A to the Applicant's response to Q1.2.17 as submitted by the Applicant at Deadline I (REP1-122) where full details on the proposed measures to reduce any residual risks to Annex I reef habitat that may develop prior to construction are detailed.
3. Physical recovery of seabed topography	The Applicant is pleased to note that Natural England is now in agreement that the information presented by the Applicant demonstrates that sediments and associated benthic communities will recover from cable installation. Noting also the agreement reached on the characterisation

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	of The Wash and North Norfolk Coast SAC discussed above, the Applicant understands Natural England's residual concerns with respect to The Wash and North Norfolk Coast SAC, relate to impacts associated with cable protection and sandwave clearance only.
4.1: Section 2.12: Please see comment on the Habitats Regulations Assessment (HRA). Natural England doesn't agree that the impacts to The W&NNC SAC will be long term temporary if cable protection is installed and not removed at the time of decommissioning.	The Applicant does not agree that impacts associated with cable protection have been assessed as 'long term temporary' within Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062). Habitat loss during the 35 year design life of Hornsea Three has been assessed as long-term. The Applicant would clarify that the maximum design scenario for Hornsea Three assumes that cable protection will remain in situ after decommissioning. The Applicant directs Natural England and the Ex.A to paragraph 2.11.3.38 et seq. of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) where an assessment of permanent habitat loss resulting from cable protection being in situ after decommissioning has been made. The Applicant will be obliged to to develop a Decommissioning Plan to cover the decommissioning phase, which will take account of the latest guidance and advice from stakeholders at the time.
4.2: Section 2.13: Natural England notes that there is not differentiation between the ecology of nearshore more stable sandbanks and those more mobile offshore sandbanks in the site. It should be noted that all of the features within the W&NNC SAC are protected not just Annex I reef habitats.	The Applicant would suggest that differentiation between stable and mobile sandbank environments is inherent in the allocation and assessment of the different component biotopes to the part of the offshore cable corridor that coincides with The Wash and North Norfolk Coast SAC i.e. SS.SSA.IFiSa.NcirBat biotope in inshore sandy sediments and SS.SBR.PoR.SspiMx biotope in offshore more stable coarse/mixed sediments. The Applicant is in agreement that all features of The Wash and North Norfolk Coast SAC are protected but would clarify that the mitigation measures to microsite around Annex I features, as proposed for the project are to avoid direct impacts to Annex I reefs only.
4.3: Section 2.14: Natural England advises that any impacts are assessed against the interest features of the site and not the whole site. Again please see our comments on the HRA and Cable protection clarification not in relation to the use the use of 'sensitive cable protection'.	The Applicant notes Natural England's comments regarding interest features (i.e. sub-features) and would highlight that the extents of individual sub-features were not publicly available at the time of the DCO submission. The Applicant would refer the Ex.A to their response to Natural England's comment in paragraph 3.2 of Annex D5 of Natural England's Written Representation (REP1-214) above and would be able to provide this assessment, together with an update to the in-combination assessment for The Wash and North Norfolk Coast SAC at Deadline 3. This work can be progressed following Natural England providing the Applicant with baseline information with respect to the extents of sub-features within the SAC, although it should be noted that the outcome of this assessment is not anticipated to change the conclusions presented in section 2.14 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062).
4.4: Section 2.16: Natural England advises that the 2018 survey	As noted above, the Applicant is pleased that Natural England has confirmed that the drop down video survey is

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was not based on any geophysical survey data and therefore we still have uncertainty about the extent of any reef features that may be found in the area and the ability to bury the cables.	acceptable for the purposes of characterisation and that they agree that the habitats surveyed do not constitute Annex I reef. The Applicant considers that the mitigation proposed for the project (i.e. a pre-construction Annex I reef survey to delineate areas of reef which may develop prior to construction and the implementation of measures to avoid direct impacts to these features, where possible) is adequate to control any residual risks to Annex I reef habitats.
4.5: Section 2.18: It would be useful if all of the data collected could be presented to gain a better understanding of the habitats.	The Applicant would be willing to share the relevant data with Natural England and will liaise with Natural England directly on this matter. Due to the volume and format of the data, it was considered impractical to have included the entire video footage and stills to the Ex.A at Deadline 1 (i.e. 10 video transects totalling over 90 minutes of footage and 185 stills photos from these transects). It is also not considered appropriate to do so as the raw video and stills data are not considered to be material to the determination of the DCO application.
4.6: Figure 2.1: Please note that the extrapolation distance in between 4 km and 5 km.	The Applicant considers that the extrapolation distance between the site-specific drop down video data points is acceptable for a characterisation and is consistent with extrapolation distance elsewhere in the Hornsea Three array area and offshore cable corridor (as agreed with the EWG; see the Applicant's response to Annex D5 of Natural England's Written Representation; REP1-214). The Applicant also notes that in paragraph 2.5 above, Natural England have confirmed that the drop down video survey is acceptable for the purposes of characterisation.
4.7: Section 2.19: Natural England is uncertain how the elevation was assessed and would like this to be clarified. See comment 4.8.	The widespread slipper limpet *Crepidula fornicata* shells, which are typically up to 5 cm in length, were very useful for gauging scale in the stills and in the video footage.
4.8: Table 2.1: Natural England notes that there is a degree of uncertainty in the parameters used for the reefiness assessment e.g. 'rough estimate'. Also Side Scan Sonar is often required to determine the extent of any habitat, which we do not have.	The Applicant would highlight that the criteria outlined in Table 2.1 of The Wash and North Norfolk Coast SAC Clarification Note, were taken directly from the best available guidance for undertaking stony reef assessments (i.e. Irving, 2009). On the comment regarding determining the extent of reef habitat, the Applicant would reiterate that no stony reef habitat (i.e. based on patchiness and elevation) was recorded during the drop down video survey and therefore extent mapping was not required. Detailed geophysical data will, however, be available to inform the pre-construction Annex I reef survey.
4.9: Table 2.3: Location 1-3 are characteristic of more stable sediments and have been found elsewhere within the site. These areas have less sediment transport and mobility and have correlated with sub-optimally buried cables.	The Applicant refers the Ex.A to their response to Annex D7 of Natural England's Written Representation (REP1-214) above.
4.10: Section 3.2: Natural England disagrees that there will be	The Applicant would clarify that section 3 of The Wash and North Norfolk Coast SAC Clarification Note relates to the

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temporary habitat loss if cable protection is placed in these locations, due to uncertainty around the ability to decommission cable protection once in situ.	recovery of benthic communities from construction activities resulting in temporary habitat loss/disturbance only (i.e. cable installation and jack-up barge footprints associated with horizontal directional drilling (HDD) exit pits). Long-term/permanent habitat loss impacts associated with cable protection are addressed in the Cable Protection Clarification Note (REP1-138).
4.11: Sections 3.2 and 3.8: Please note that Natural England has concerns in relation to the placement of HDD exit pits within designated sites due to the requirement for cofferdams and significant structural change in the sediments in those areas.	The Applicant refers the Ex.A to their response to points 3.8 and 3.9 in Annex D6 of Natural England's Written Representation (REP1-125) above.
4.12: Section 3.6: Whilst it is discussed that mobile sediments are more likely to infill quickly in the nearshore at Hornsea Project Three HDD exit pits than at Barrow or Lynn Inner Dowsing due to higher wave energy, there is no evidence to support this. This is not evidence [sic] but Natural England that better evidence could be provided by giving figures from the different sites to demonstrate that wave energy is higher and sediments are more mobile.	The Applicant refers Natural England and the Ex.A to section 1.7.1 of Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061) which discusses the characterisation of the currents, wave regime and sediment transport conditions across the Hornsea Three marine processes study area. Specifically, paragraph 1.7.1.24 of Volume 2, Chapter 1: Marine Processes of the Environmental Statement supports the conclusions made within The Wash and North Norfolk Coast SAC Clarification Note.
4.13: Section 3.7: Natural England agrees that if trenches and jack up footprints infill with sediment of similar enough type to original then benthic fauna will recover. Please note that within aggregates Marine Licenses, for works in similar areas, a standard condition is applied that the sediment backfilling needs to be within 95% similarity in terms of PSA.	The Applicant is pleased that Natural England is in agreement regarding the recovery of sediments and benthic communities associated with cable trenches and jack-up footprints.
4.14: Section 3.8: The Applicant refers to supporting habitats of The W&NNC SAC, but these are in fact the habitats/ features for which it is designated. It would be much easier to make an assessment and cross-reference if the documents/assessments cross-reference the information they have with the information in the advice on operations in Natural England conservation advice packages. In the advice on ops sensitivity assessments there are various biotopes associated with each sub feature – mixed sediment, subtidal sand etc. If the information provided (i.e. NcirBat, MoeVen2 and SspiMx3 biotopes) is cross referenced as to which sub feature this relates to and whether they agree that the same biotopes or different ones are present (because they have more data) then this would help to inform a sensitivity assessment.	The Applicant refers the Ex.A to their response to Natural England's Point 4.3 above and also to the Applicant's response to paragraph 3.2 of Annex D5 of Natural England's Written Representation (REP1-214) above. Following Natural England recently providing the Applicant with baseline information with respect to the extents of sub-features within the SAC, the Applicant will be able to provide the assessment requested, together with an update to the in-combination assessment for The Wash and North Norfolk Coast SAC at Deadline 3 although it should be noted that the outcome of this assessment is not anticipated to change the conclusions presented in section 2.14 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062).
4.15: Section 3.12: Whilst Natural England agree that sandy sediments are likely to recover from cable installation (assuming no cable protection and sandwave clearance) we disagree about the mobility of the sediment at survey locations 1-3 and therefore the statements in relation to recoverability.	The Applicant is pleased to note that Natural England is in agreement that the inshore sandy sediments will recover from cable burial. The Applicant acknowledges that Section 3.12 of The Wash and North Norfolk Coast SAC Clarification Note refers only to the recovery of sandy sediments and would direct the Ex.A and Natural England to paragraphs 2.11.1.74 et seq. of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-

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	062) where a full discussion on the recovery of communities associated with the SS.SBR.PoR.SspiMx biotope in mixed sediments is presented.
4.16: Section 3.12: It should be noted that the data collected for Sheringham Shoal and Dudgeon are outside of the designated sites.	Natural England's comments are noted but the Applicant would highlight that the environments and sediments present in the areas of data collected for Sheringham Shoal and Dudgeon are very similar to those for Hornsea Three (i.e. in adjacent areas of seabed) and are therefore considered to be highly relevant as supporting evidence for the recovery of sediments.
4.17: Section 3.15: Natural England queries if there has been any ground truthing of the geophysical data along the Sheringham Shoal and Dudgeon export cables i.e. DDV, grabs, Particle Size Analysis (PSA) etc. Whilst it is useful to have reviewed the geophysical and profiles from Sheringham Shoal and Dudgeon cables – it would have been good to mark cable trench location on the profile plots for clarity. The fact that scars from cable installation can still be seen seven and two years later implies that the environment is not very dynamic, but in terms of functioning, if the sediments in the trenches are similar, then there should not be a change in benthic fauna	As discussed with Natural England during the Evidence Plan process, the Applicant has not been able to collect data over the Dudgeon and Sheringham Shoal cables (despite numerous attempts) due to the presence of static fishing gear in these areas. However, the geophysical data presented in the Wash and North Norfolk Coast SAC Clarification Note are adequate and appropriate to demonstrate recovery of the seabed sediments. The Applicant is in agreement with Natural England's point made in paragraph 3.1 above, that if the sediment recovers then the benthos will also recover and therefore the Sheringham Shoal and Dudgeon geophysical data is valuable evidence even in the absence of ground truthing.
4.18: Section 3.17: It is unclear whether there has been rapid recovery in one year or the impacts were just less in this area? Sand ripples in the picture indicate there is some sediment mobility in the area.	As noted in paragraph 3.17 of The Wash and North Norfolk Coast SAC Clarification Note, the reduction in seabed profile across the remnant trenches was only 10 to 20 cm. In the absence of information on the depth of cable burial in these areas for these projects, it can be realistically assumed that the cables will have been buried to at least 1-2 metres. The Applicant therefore considers this demonstrates rapid recovery over the period of a single year.
4.19: Sections 3.21, 3.25 and 3.28: Please note that the size and scale of the works referenced are different to those being proposed. Therefore some precaution is required when extrapolating between offshore and near shore and even within sites especially along long export cable routes where environmental conditions may change.	The Applicant highlights that Natural England's comment relates to a section of The Wash and North Norfolk Coast SAC Clarification Note on the recovery of jack up footprints associated with HDD exit pits in the Cromer Shoal Chalk Beds MCZ. The Applicant confirms that this is in relation to activity in the nearshore area only and has drawn on data from the Hornsea Three 2018 geotechnical survey during which jack-up footprints were created in the MCZ. The Applicant therefore agrees with the Natural England comment that the evidence presented within this clarification note is therefore applicable to the nearshore works and not as relevant to offshore construction, where both the environmental conditions and the proposed activities (i.e. use of considerably larger jack up vessels for turbine foundation installation) are different.

Response to Annex D7 (REP1-117) of Natural England's Written Representation

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1. Characterisation	The Applicant notes the Natural England comments regarding the purpose of benthic ecology characterisations being to identify the principal habitats and benthic communities present, against which a thorough assessment of effects associated with the project can be undertaken and would note that this is consistent with the Applicant's position. The Applicant also notes Natural England's comments relating to the site-specific data coverage for the Hornsea Three offshore cable corridor reroute in the nearshore area, and particularly the area coinciding with The Wash and North Norfolk Coast Special Area of Conservation (SAC). The Applicant understands, however, that these relate specifically to the information presented in Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) and Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement (APP-101). In response to this, the Applicant submitted The Wash and North Norfolk Coast SAC Clarification Note at Appendix 5 of the Applicant's response to Deadline I (REP1-140), detailing the results of the drop down video survey undertaken within the SAC since the DCO submission in May 2018. The Applicant welcomes Natural England's recent review and consideration of the information presented within that report and is pleased to note that Natural England have since confirmed in paragraph 2.5 of Annex D1 of their Written Representation (REP1-210) that the drop down video survey is acceptable for the purposes of characterisation. Therefore, in summary, it is the Applicant's understanding that there is now agreement between Natural England and the Applicant that both the Hornsea Three array area and offshore cable corridor have been adequately characterised for the purposes of undertaking the Environmental Impact Assessment (EIA). With regard to Natural England's comments about the current absence of site-specific geophysical data for the nearshore area and the implications that this has for the maximum design scenario for cable protection, the Applicant wishes to clarify to Natural England and the Ex.A that the outputs of geophysical data alone, do not provide an indication of likely cable burial success and therefore of the likely cable protection requirements for the project. Further details of the purpose of the cable burial risk assessment are provided in the Applicant's comments on the Natural England Offshore wind cabling paper above. As indicated in the Applicant's response to the Ex.A question Q1.2.4 (REP1-122), for cable burial, a range of methodologies and tools could be used, including pre-trenching and rock cutting which can be used to install cables in areas of stiff clays and rock. The Applicant therefore does not agree that there is a higher likelihood of cable protection being required in the areas within which geophysical data is currently absent. The Applicant would highlight that it is standard practice for offshore wind farms, that the cable burial risk assessment is undertaken post-consent (see the Applicant's comments on the Natural England Offshore wind cabling paper above for further details).

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2. Hornsea Three characterisation data	
The Hornsea Benthic Technical report (Volume 5, Annex 2.1 - Benthic Ecology Technical Report) is detailed and shows the data available. There is appropriate characterisation data available for the location of the turbines and surrounding area. There is also a good coverage of data across the offshore area of the cable. However, there is limited geophysical and benthic data available on the inshore area of the revised cable corridor. The area from where the cable corridor diverts from its original route, to the more northerly route to landfall, has only two data points and is approximately 33 km. Please see figure 2.1 in Volume 5, Annex 2.1 Benthic Ecology Technical report.	See the Applicant's general response on the Hornsea Three benthic ecology characterisation (i.e. Point 1) above.
The available data in this location is included in Figure 2.1, 4.28 and 4.29: The report states that where specific survey data were not available the 'nearby' biotope classifications were used to 'confirm' and extend the biotope map, see figure 4.28. The process of extrapolating biotopes further than the sample location is only a valid approach if the underlying geophysical data such as Side Scan Sonar and its backscatter data are used to limit biotope extensions by linking the changes in physical environment type to the biotope type (e.g. use of acoustic facies). The information in the current cable corridor biotope map does not support the extrapolation for a number of reasons: 2.2.1. Figure 3.3 (also reproduced in Annex I below) shows the data available for the nearshore section of the cable corridor. There is no geophysical data available for the nearshore 33 km section of the cable corridor. In addition to this the benthic samples that have been used are from Sheringham Shoal (2006 and 1 sample from 2014), Dudgeon (2009), Cromer Shoal Chalk Bed MCZ (Defra, 2015). These are not only sparsely located, but also old mostly 2009 and 2006 with one sample from 2014. This whole section of corridor (bar the inner 4km) contains only 9 samples and has no geophysical data. We therefore do not have confidence that the data provided is an accurate representation of the habitats present in the region. 2.2.2. There are contradictions in figures 4.28 and 4.29; the geophysical data available does not support the extrapolation and extensions of the biotopes. In some cases these habitats contradict each other. See Section 4. 2.2.3. The underlying geophysical data provided in Figure 4.29 does not extend into the cable corridor 'buffer/margin' on the west side, yet the biotopes from individual grab samples some from the Dudgeon and Sheringham OWF cable routes (located considerably further around the coast) have been extended in to this. The lack of geophysical and ground truthed data along the actual cable route means we have little confidence in the biotope map provided. 2.2.4. In addition, there is data (circled in red on the figures in Annex I) from Seasearch dives that contradicts the biotopes presented in figure 4.28. The seasearch data shows habitat	See the Applicant's general response on the Hornsea Three benthic ecology characterisation (i.e. Point 1) above, with the following clarification. With specific regard to Natural England's comments in sections 2.2.2 and 2.2.4 on the Seasearch data, the Applicant accepts that there is an error in the nearshore biotope map presented in Figure 2.5 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) and Figure 4.28 of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement (APP-101). The results of the Seasearch survey are described in full in paragraph 3.1.3.12 of Volume 5, Annex 2.1: Benthic Ecology Technical Report of the Environmental Statement (APP-102) and is presented in Figure 4.27 of the same document. However, the corresponding area of circalittoral/infralittoral rock within the temporary working area of the Hornsea Three offshore cable corridor in the nearshore area within The Wash and North Norfolk Coast SAC, is not shown correctly on the biotope figures as indicated in the Natural England comment. The Applicant would highlight that the Hornsea Three site-specific ground truthed data for the nearshore area confirms that the surrounding area is subtidal sandy sediment. The Applicant would also highlight that, although this circalittoral rock habitat is within the temporary working area and will therefore not be directly affected by cable installation or cable protection, adequate mitigation measures have been proposed for the project to avoid direct impact to this Annex I reef habitat (e.g. from the disposal of sandwave clearance material or anchor placement). The Applicant refers the Ex.A to Table 2.18 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062)and to the Applicant's response to Q1.2.17 as submitted by the Applicant at Deadline 1 for full details.

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types of circalittoral and infralittoral rock, whereas the biotope map shows the same area to have biotopes SS.SSa.IFiSa.NcirBat Nephtys cirrosa and Bathyporeia spp. in infralittoral sand and SS.SCS.ICS.MoeVen Moerella spp. with venerid bivalves in infralittoral gravelly sand. The difference in sediment type from rock (seasearch survey) to sand and gravel (biotope extrapolation) is of particular concern as these would require different cable installation techniques, limitations and mitigation. The lack of ground truthed information along this same section of cable corridor is of particular concern with respect to assessing which Annex I habitats are present. The Wash and North Norfolk Coast SAC has a high level of protection and therefore the evidence requirements are highest. Considering this lack of data, we do not believe the EIA provides adequate information to characterise and assess the impacts of this installation to the protected sites (such as the Wash and North Norfolk SAC) and the wider marine environment.	
3. What level of information is required for the cable corridor?	
Good quality geophysical data is required across the cable corridor, including any margins/buffers to these locations and any possible alternative cable routes (Ware and Kenny 2011). We advise, this geophysical data should be used to determine the locations of the benthic groundtruthing stations, typically grab samples of drop-down video tows. These groundtruthing stations should be targeted to ensure good coverage of the project and its zone of impact and that there are representative samples in all of the different geophysical signatures seen. It is possible to plan the groundtruthing sampling array without the geophysical data, but more samples would be required.	See the Applicant's general response on the Hornsea Three benthic ecology characterisation (i.e. Point 1) above.
In terms of the current data for the cable route, full geophysical coverage together with an additional 10-15 benthic samples is required in the inshore cable section to enable us to be confident in the habitat maps provided. This will then provide sufficient information to inform an assessment of the potential impacts of cable installation on the identified features of relevant MPAs (and the wider marine environment). A full assessment should include: Realistic worst case scenario predictions of area of each relevant habitat type/ species impacted along with realistic assessment of recovery from the cable installations and associated activities and infrastructure. Evidence from developments of similar scale and in a similar habitat should be analysed and presented. The assessment should also refer to sensitivity and recoverability information that is provided in the most up to date Conservation Advice for each feature. An assessment of how the above predictions relate to the conservation objectives of any relevant MPA, Further information on the subsurface geology (geotechnical information) and coastal processes should also be taken into	See the Applicant's general response on the Hornsea Three benthic ecology characterisation (i.e. Point 1) above, with the following clarification. The Applicant would highlight that, as outlined by Natural England, the assessment has presented predictions of the area of each relevant habitat impacted throughout section 2.11 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062). For example, paragraph 2.11.1.17 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement presents the maximum potential losses of each habitat affected within the Hornsea Three offshore cable corridor. Furthermore, a comprehensive and realistic assessment of recovery has been presented throughout section 2.11 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement. The Applicant refers the Ex.A to the Applicant's response to Q1.2.10 as submitted by the Applicant at Deadline 1 (APP-122) for full details of the sources of empirical evidence issued to support the assessments.

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consideration as this will import the likelihood of a particular impact occurring and it's longevity.	
This characterisation is also critical in terms of informing the pre-construction benthic baseline array and ongoing monitoring surveys of the array and cable corridor should it be consented. The current data available does not provide enough information to know where to target sampling for the baseline and subsequent monitoring.	The Applicant would note that detailed Hornsea Three site-specific geophysical data will be available for the project prior to the pre-construction survey and will be used, as suggested, in informing and targeting the pre-construction Annex I surveys.
4. Figures The areas circled in red show 2 different habitats in the same location. Figure 2.29 shows circalittoral rock and infralittoral rock from seasearch samples and rock outcrops with sand veneers. In addition Figure 4.29 has data from the 2017 seabed sediments survey which shows subcrop and outcropping rock as well as some sand and fine sand. In contrast in the same location Figure 2.28 shows subtidal sand. These obviously contradict each other and need to be resolved to understand the impacts and feasibility of installing a cable in this location.	See the Applicant's comments above in relation to representation of circalittoral rock in the Figures referred to by Natural England.

Response to Annex D2 (REP1-216) of Natural England's Written Representation

Interested Party's Written Representation	Applicant's Response
2.General Comments 2.1. Overall Natural England and JNCC welcome this clarification note because it evidences some of the Applicant's positions and answers some general questions we had; and depending on Natural England and JNCC's review of the evidence presented it could be of wider use. 2.2. However, what it fails to do is relate the evidence (mainly from Inner Dowsing North Ridge and Race Bank SAC) to the three Marine Protected Areas (MPAs) considered within export cabling assessments for Hornsea 3 (i.e. The Wash and North Norfolk Coast (W&NNC) SAC, North Norfolk Sandbanks and Saturn Reef (NNSSR) SAC and Cromer Shoal Chalk Beds MCZ) and the sediments and mobility in those sites. It is therefore difficult to understand whether the hydrodynamics are similar enough to other sites for the infill and sediment transport arguments to hold true.	The Cable Protection Clarification Note, as submitted at Appendix 6 of the Applicant's response to Deadline I (REP1-138), presents a range of field monitoring, theoretical and laboratory evidence that consistently and robustly describe a conceptual model of the processes controlling sediment transport over and around cable protection type obstacles on the seabed. The processes are shown to be fundamentally similar and applicable over a range of (mobile) sediment types and for a range of environmental settings (including higher and lower rates of sediment mobility, and more or less plentiful sediment supply). The note illustrates that the observed net result of the cable laying has been either net sediment accretion (local sediment accumulation) or net sediment erosion (local scour), depending on the local balance of sediment mobility and supply, which may also vary over time. Marginal conditions (maximum scour and maximum sediment accumulation) have been demonstrated to be inherently limited by and within the range of the controlling natural processes. The assessments presented in paragraph 1.11.8.52 et seq. of Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061) and in Section 9.4.2 of Volume 5, Annex 1.1: Marine Processes Technical Report of the Environmental Statement (APP-101), take full account of these controlling natural processes in their methodologies. It is therefore concluded with high confidence that the basis and results of the assessments are valid for the full range of environmental settings considered for Hornsea Three, including both SACs and the Cromer Shoal Chalk

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	Beds MCZ).
3.1: Section 1.3 and Table 2.1: (As highlighted above) Natural England welcomes the reduction in the amount of cable protection now proposed within designated sites overall, but it should be noted that the amount within The Wash and North Norfolk Coast has increased by 63%.	The Applicant would clarify that the area of long-term/permanent habitat loss within The Wash and North Norfolk Coast Special Area of Conservation (SAC) increased from 29,400 m2 to 46,200 m2 as a result of the offshore cable corridor re-route in the nearshore. This equates to a percentage increase of 57%. The Applicant would highlight that, as outlined in Table 2.1 of the Cable Protection Clarification Note (REP1-138), this was due to an increase in the length of export cables within the site, rather than an increase in the maximum design scenario assumptions with regard to the proportion of the total export cable length requiring cable protection. The Applicant acknowledges this increase in long-term/permanent habitat loss but would highlight that the re-route resulted in a reduction in the total length of cable passing across both the SAC and the Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ) by 45%.
3.2: Section 3.1: The cable risk assessment should be provided sooner rather than later to inform the actual need for cable protection.	As per the standard approach for all offshore wind farms, the Cable Burial Risk Assessment for Hornsea Three will be undertaken post-consent.
3.3: Section 3.3: We believe that good evidence to justify the 10% has been presented. However Natural England and JNCC would like further clarity as to whether this includes all protection on the export cables to date; in particular, the recent applications for Race Bank. We also question if there evidence to demonstrate that particular features to install cable sin than others. It would therefore be good to have more detail on what sediment/seabed structure/formation makes cable installation more challenging and then compare that with the habitats along the Hornsea Project Three cable route be assured they are comparable. It would also be useful to compare to cable installations undertaken by other developers to provide a fuller evidence base.	The Applicant can confirm that the evidence presented for Race Bank on the amount of cable protection laid on offshore export cables does include the latest marine licence applications referred to by Natural England. The Applicant would refer the Ex.A to the Applicant's response to the Ex.A question Q1.2.4 (REP1-122), which notes that a range of methodologies and tools could be used, including pre-trenching and rock cutting which can be used to install cables in areas of stiff clays and rock. Further details on cable burial risk assessments carried out post consent are also provided in the Applicant's comments on the Natural England paper on offshore wind farm cabling above. The examples provided within the clarification note review were drawn exclusively from the Applicants projects, as this type of information (i.e. the amounts of cable protection placed on developer assets) is not typically publicly available and therefore it was not possible to use examples from other offshore wind developers.
3.4: Section 3.3: Natural England agrees that 10% is conservative, but equally that doesn't make it acceptable in terms of impact to nature conservation and MPAs. We provide advice on the worst-case scenario being applied for, i.e. 10%.	Natural England's comment is noted, however the Applicant would note the conclusions of the RIAA (APP-052) which concludes no adverse effect on integrity of either the Wash and North Norfolk Coast SAC or the North Norfolk Sandbanks and Saturn Reef SAC, based on this maximum design scenario.
3.5: Table 4.1: We welcome the inclusion of the table and the evidence presented. However, the evidence has not been related to the 3 MPAs and the sediments and mobility there. So whilst the text discusses whether or not they are analogous to HOW03, the Applicant has not considered that there is a significant difference between the 3 MPAS, their habitats; characterising sediments, and hydrodynamics etc. It would	See the Applicant's response to Natural England's General Comments (section 2 of the Cable Protection Clarification Note; REP1-138) above.

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therefore be useful is to state which parts of the route/ MPA features the specific bits of data are analogous to.	
3.6: Section 4.8: Please note that it wasn't possible to inform effect on site integrity from such a small sample of evidence sources. Please note the JNCC caveat at the start of Pidduck et al. (2017) that says: *'This report provides initial conclusions regarding the implications of rock dump in the North Norfolk Sandbanks and Saturn Reef cSAC/SCI for impact assessment of plans and/or projects. As such, JNCC does not yet consider it appropriate to use the conclusions directly in Habitats Regulations Assessments without further consideration of the evidence gaps detailed in the report and consideration of the applicability of the evidence presented.'* Therefore we advise against this report being used to support HRA conclusions.	See the Applicant's response to Natural England's General Comments (section 2 of the Cable Protection Clarification Note; REP1-138) above. The Cable Protection Clarification Note (REP1-138) contains a range of other data sources and the conclusions do not rely solely on Pidduck et al. (2017). The JNCC caveat at the start of Pidduck et al. (2017) was noted and accounted for in the clarification note, which considers a wider range of evidence and the applicability of that evidence to a wider range of environmental settings. Pidduck et al. (2017) is included as it was the only contemporary and available study of its type found regarding the possible impacts of rock dump on Annex I sandbanks in the North Norfolk Sandbanks and Saturn Reef SAC. The findings and observations in Pidduck et al. (2017) do not contradict the other evidence presented, or the conclusions of the clarification note or the assessments in the Environmental Statement.
3.7: Section 4.14: Agree, but this ignores impact on extent and distribution of sediment / habitats	The paragraph referenced by Natural England in this comment (i.e. paragraph 4.14 of the Cable Protection Clarification Note; REP1-138) describes the effects on the seabed observed in the targeted high resolution monitoring data from the areas of the Borselle and West of Duddon Sands Offshore Wind Farms. The effects are summarised as 'no effect' and 'a slight local scouring effect on the seabed and no evidence of blockage or sediment accumulation', respectively. It is implied that the impact (both on the distribution of sediment and habitats) is very spatially limited (e.g. within the order of up to ten metres from the protection). The Cable Protection Clarification Note (REP1-138) focusses on bathymetric change and was not intended to provide an impact assessment regarding the extent and distribution of sediments in relation to habitats.
3.8: Section 4.18: Agree, but needs to be specifically related to the 3 MPAs	The paragraph referenced by Natural England in this comment (i.e. paragraph 4.18 of the Cable Protection Clarification Note; REP1-138) provides a definitive conclusion that neither the rate or direction of sediment transport, nor the distribution and migration of bedforms are affected by the presence of cables or pipelines or associated protection, at the scale proposed for Hornsea Three. It is also concluded with confidence that mostly or completely buried cables (with or without protection) do not lead to the formation of local sediment accumulation greater than its own height. Therefore although the environmental conditions (hydrodynamics, depth, etc.) may vary between sites, the governing sediment transport processes are the same. As such, there is high confidence that the assessment presented in Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061) is applicable to all parts of Hornsea Three. As the assessments are based upon the governing sediment transport processes, which are the same across the three MPAs, different methods or more bespoke site specific assessments are not considered to be needed.
3.9: Section 4.19, 4.20 and 5.4: It is not clear if the evidence	See the Applicant's response to Natural England's point 3.8 above.

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presented in relation to the movement of sediment, infilling and returning to a more natural state holds for the W&NNC SAC and Cromer Shoal Chalk Beds MCZ.	
3.10: Section 5.2: Whilst it is true that hard substrate used to be naturally more prevalent in the north sea, this is not the recent and current situation and is not a justification that anthropogenic introduction of hard substrate, and any associated changes to the fauna are acceptable. Additionally as noted here, these earlier natural hard substrates were oyster reefs, gravel field and peat deposits, not terrestrial-sourced granite from Norwegian quarries.	The Applicant refers the Ex.A and Natural England to its response to paragraph 3.8 in Annex D4 of Natural England's Written Representation (REP1-217).
3.11: Section 5.7: As with comments in relation to the HRA – Natural England disagrees with the use of 'long term temporary'. This is because we believe that impacts are unlikely to be temporary due to limited confidence in full decommissioning occurring. This section also only considers Annex I reef features when the whole of the W&NNC SAC is Annex I habitat therefore impacts need to be assessed as such in line with the site's conservation objectives.1 Please also note that a change of habitat is just as significant as loss of habitat, when that habitat is the designated feature.	The Applicant refers the Ex.A and Natural England to their response to point 4.1 in Annex D1 of Natural England's Written Representation (REP1-210). In response to Natural England's second point, the Applicant confirms that assessments of the effects associated with long term and permanent habitat loss from cable protection in The Wash and North Norfolk Coast SAC are presented in paragraph 2.11.2.22 et seq. and paragraph 2.11.3.49 et seq. respectively, of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062).
3.12: Section 5.12: Please note that Natural England and JNCC are further considering the evidence presented in relation to NNS from Oil and Gas platforms and wind farm stabilisation material and once we have that we will provide further advice.	Natural England's comment is noted.
3.13: Section 5.17: Natural England notes that Coolen (2017) and similar studies discuss the positive effects of rock protection in terms of wider North Sea biodiversity. They do not consider it in terms of MPAs and their conservation objectives. We advise that considering rock protection installation as a positive effect is not in line with the Habitat Regulations which are protecting the features the site is designated for.	The Applicant would clarify that although references such as Coolen (2017) may discuss the positive effects of cable protection, the installation of cable protection for Hornsea Three has not been assessed by the Applicant as a positive effect within Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062). The purpose of referencing sources such as Coolen (2017) in the Cable Protection Clarification Note (REP1-138), was to provide evidence to support the use of sensitive cable protection measures within designated sites to facilitate ecological functioning in areas of cable protection, as was requested by Natural England in their Relevant Representation (RR-097). The Applicant's would note that, as set out in paragraph 5.20 of the Cable Protection Clarification Note (REP1-138), the purpose of this paper was to provide evidence that the cable protection measures proposed for Hornsea Three would allow for some continued ecological functioning following deployment of this material, whilst acknowledging that this material does constitute the introduction of alien material into the marine environment.
3.14: Section 5.19: As per previous comments NE agrees with the infill, although uncertainty remains as to its applicability to The W&NNC and Cromer Shoal Chalk Beds MCZ compared to NNS SAC. Whilst the colonisation may be typical of the north sea	The Applicant is pleased to note that Natural England agrees that the cable protection measures will be gradually infilled by soft sediments over time and the Applicant refers the Ex.A to its response to Natural England's point 3.8 above with regard to its applicability to nearshore designated sites. Noting Natural England's comments in paragraph 3.1 of Annex D1 of their Written

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broadly we do not think it typical of at least some of the areas where the cable protection is proposed.	Representation (REP1-210) that if sediment recovers then the benthos is also likely to recover, then the Applicant considers that it is reasonable to assume that benthic species, similar to the surrounding soft sediments, will colonise these sediments over time. The results of the drop down video survey undertaken by the Applicant within the part of the Hornsea Three offshore cable corridor that coincides with The Wash and North Norfolk Coast SAC, as presented in The Wash and North Norfolk Coast SAC Clarification Note (REP1-140) identified an epifaunal community in association with cobbles and pebbles. Natural England noted this in paragraph 2.7 of Annex D1 of their Written Representation, and therefore the Applicant is of the view that it is entirely reasonable to suggest that similar species would be expected to colonise the sensitive cable protection in these areas, based on the evidence presented in the Cable Protection Clarification Note (REP1-138).
3.15 Section 5.20: Sensitive cable protection measures – As with cable protection placed at Lune Deep you need the right receiving environment to mimic with sensitive cable protection provided. As per our comments on the HRA Natural England questions whether sensitive cable protection measures can be undertaken due to engineering requirements. The evidence presented for Race Bank OWF marine licence variation and marine licence re the type of protection that can be technically used, such as similar grain size has been discounted because it could be moved during a storm and doesn't provide sufficient protection [sic] again anchors and fisheries (Ref. WSP Remedial Burial Assessment – SJ20180628115546973) There is also the added concern that any protection of this nature will be displaced over time and there will need to be operation and maintenance work over the life time of the project to recharge any cable protection, thus increasing the amount of rock in the marine environment. And as proposed in this application there would be no ability to review/control this going forwards as the O&M assessment simply says 'where rock has been previously placed' with no information on amount and locations.	The Applicant seeks additional clarification from Natural England on their first point and on the nature of the cable protection which has been placed at Lune Deep. With respect to Natural England's second point, the Applicant would note that the grain size proposed for the Race Bank application is not considerably different to those proposed for Hornsea Three (i.e. median diameter of 71 mm for Race Bank compared with a median grain size of 100 mm for Hornsea Three). The Applicant can confirm that the maximum design scenario for Hornsea Three, including the commitment to implement sensitive cable protection measures within designated sites, has been developed with the Applicant's cable engineers drawing on the Applicant's extensive experience from other offshore wind farm projects in the UK and overseas. The Applicant can confirm that such protection will provide adequate protection over the lifetime of the project. With respect to Natural England's final point, the Applicant refers the Ex.A to its response to Ex.A question Q1.2.7 as submitted at Deadline I (REP1-122) and also to its response to Annex D4 of Natural England's Written Representation (REP1-217) where the Applicant clarifies that it is committed to reporting volumes and locations of cable protection to Natural England.
3.16: Section 5.22: Between the SNCB's there are on-going discussions in relation to the Annex I status of any *Sabellaria spinulosa* reef growing over artificial substrate such as cable protection.	Natural England's comment is noted.
3.17: Section 6.1: Natural England agrees that the clarification note sets the parameters for cable protection and that Ørsted have evidenced the conclusions. However, as per previous comments uncertainty remains.	Natural England's comment is noted, although the Applicant's position is that the evidence to support the maximum design parameters is robust.
3.18:	The Applicant is pleased to note that Natural England agrees that

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Section 6.3: Natural England agrees that in some locations and in a wider seas context cable protection may become infilled or even buried, but currently this is not a valid argument for lack of longer term impact within an MPA. Habitat change is a pressure different to habitat loss, but it is still a change to the feature that the site was designated for and therefore may still hinder the conservation objectives for the site.	there is potential for cable protection measures to be gradually infilled by soft sediments over time. The Applicant does not however agree that this has been used by the Applicant at any point to argue that there will be no impact as a result of cable protection. The Applicant clearly acknowledges within Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062) that there are predicted to be effects of minor adverse significance on benthic receptors, including features of designated sites, associated with the installation of cable protection. As outlined in the RIAA (APP-052), these effects are not predicted to result in an adverse effect on the integrity of either The Wash and North Norfolk Coast SAC or the North Norfolk Sandbanks and Saturn Reef SAC. Natural England's comments regarding habitat change are noted although the Applicant has presented evidence in the Cable Protection Clarification Note (REP1-138) to demonstrate that sensitive cable protection measures have the potential to enable the areas affected by cable protection to continue to have some ecological functionality. The Applicant would also refer the Ex.A to paragraph 2.11.2.4 of Volume 2, Chapter 2: Benthic Ecology (APP-062) which notes that the assessment is considered to be equivalent to the Intersessional Correspondence Group on Cumulative Effects (ICGC) pressure "Physical loss (permanent change): Physical change (to another seabed type).

Response to Annex D3 (REP1-215) of Natural England's Written Representation

Interested Party's Written Representation	Applicant's Response
2. Recoverability	
2.1 Firstly Natural England queries why the Applicant has presented different data for Hornsea Project Three from that presented on and for their other project Race Bank OWF in relation to sandwave clearance. Whilst it may well be a matter of timing of reports and internal communication, it gives the impression that they are presenting relevant bits of the data that suit their case. 2.2 Whilst the sandwave levelling clarification note has some good points, the Race Bank sandwave recovery report is more convincing in terms of evidence that sandwaves will recover from standard dredging.	The Applicant can clarify that the recent sandwave recovery report submitted for the Race Bank offshore wind farm (presented at Appendix 8 to the Applicant's response to Deadline 2) includes monitoring data not available at the time of writing the Sandwave Clearance Clarification Note as submitted at Appendix 11 of the Applicant's response to Deadline I (APP-183). The Applicant would note, however, that this additional Race Bank monitoring data (which covers a longer time series which explains the greater level of recovery) provides further, consistent monitoring evidence that levelled sand waves will recover in a manner consistent with the basis and conclusions of the assessments made in paragraph 1.11.5.3 et seq. of Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061).
2.3 However, we remain confused by the different locations monitored and reported on in the two reports. Based on the sandwave recovery report from Race Bank we believe that there is some confidence that sandwaves will recover, but there is a question as to how relevant that is to the area proposed for the export cable route through North Norfolk Sandbanks SAC where the sandbanks are generally deeper and less exposed to wave action; so recovery there is likely to be slower – potentially	The monitoring evidence all consistently shows that levelled sand waves will recover in a manner consistent with the basis and conclusions of the assessments made in paragraph 1.11.5.3 et seq. of Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061). The only variability is timescale. A relatively slower rate of recovery in areas of relatively lower

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years rather than months.	sediment mobility has been consistently recognised by the Applicant and included in the basis and conclusions of the assessment. In paragraph 1.11.5.9 of Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061), the assessment concludes with 'high confidence that the seabed will recover to a new natural equilibrium state within a timescale of months to years. However, any predictions of the actual local timescales of change, as well as the form of the 'new' features would have low-medium confidence'.
2.4 We also are interested in the changes in smaller scale topography observed in the Race Bank monitoring in areas around the impact as we would not have necessarily expected those changes and we are unsure if they would have any impact on biological communities. Equally there does not appear to be any analogy for the section of the Wash and North Norfolk Coast SAC or the Cromer Shoal Chalk Beds MCZ impacted by the cable installation, so it is not clear how analogous the Race Bank data are to the Hornsea Project Three proposed works. Should they be analogous in terms of conditions then it is likely that we could be more confident in terms of recovery.	The seabed areas where sandwaves occur are typically mobile. Bedforms are present at a range of scales and are expected to be actively migrating and evolving over a range of rates and timescales. Therefore, whilst smaller scale changes in topography are visible around the locations of sandwave clearance between the pre-dredge, during, and post-recovery survey data, the differences are considered more likely to be associated with the natural evolution of bedforms generally and not necessarily in response to or because of the sandwave clearance or subsequent recovery processes. Although the environmental setting may vary, the governing sediment transport processes responsible for formation of sandwaves and the recovery of sandwaves following clearance are the same. As such, there is high confidence that the assessment is applicable to all parts of Hornsea Three, noting that there may be variations in the recovery rates depending on the specific environmental setting, as outlined above.
2.5 We believe that the Applicant has now provided sufficiently justified to support their proposed sandwave clearance volumes. However, we would like to understand how the actual volumes of sandwave clearance undertaken as part of the Race Bank Project relate to the volumes they applied for.	Sandwave clearance volumes for Race Bank were reviewed as part of the process to define volumes included within the Hornsea Three DCO application. However, the Applicant would direct the Ex.A to the Sandwave Clearance Clarification Note which describes the process for defining sandwave clearance volumes for Hornsea Three.
2.6 The main factors that are considered to influence the recovery potential (i.e. the mechanism and speed of recovery) of the levelled sandwaves are: 2.7 The dimensions of the dredged area, particularly the width and depth of the dredged channel relative to the overall sandwave height, and the alignment of the dredged channel relative to the crest axis; and 2.8 The degree of sediment mobility at the dredge location, which is in turn controlled by the environmental forcing conditions and water depth. 2.9 It would therefore be useful to ensure any assessment of the offshore sites takes this into consideration and we believe that the relevant site information is available to undertake such an assessment. Understanding these factors would also inform assessment of hydrological process impact within site integrity tests.	Although the environmental setting and the specific dimensions of individual sandwave clearance activities may vary, the governing sediment transport processes are the same. As such, there is high confidence that the assessment is applicable to the range of sandwave clearance activities proposed in all parts of Hornsea Three.
3 Differentiation between nearshore and offshore sandbanks 3.1 The document presented does not make any distinction in	The Applicant refers the Ex.A to their responses to Natural England's comments above, i.e. that the governing sediment transport processes responsible for formation of sandwaves and the recovery of sandwaves following clearance are the same and

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the potential recovery of offshore and nearshore sandbanks. There is some analogy to what has happened with sandwave clearance at Race Bank, but no taking into account local conditions in each site and likelihood and timescales of sediment reworking.	as such, the assessment is applicable to all parts of Hornsea Three, noting that there may be variations in the recovery rates depending on the specific environmental setting, as outlined above.
4. Comparison between HOW03 and Norfolk Vanguard	
4.1 Natural England is aware that Norfolk Vanguard (also in the planning system) proposes sandwave levelling within an offshore SAC namely Haisborough Hammond and Winterton. Therefore we thought it appropriate to undertake a review to compare the evidence presented to support that application with that for HOW03 and North Norfolk Sandbanks.	The Applicant acknowledges that the independent assessments undertaken for Hornsea Three and Norfolk Vanguard have come to the same conclusion that there will be not significant impacts to designated sites associated with sandwave clearance. As outlined in the responses above, given the governing sediment transport processes are the same across these designated sites, the fact that both assessments have arrived at the same conclusion for different sites is expected. The Norfolk Vanguard conclusions therefore provide further evidence and confidence about sandwave recovery across all parts of Hornsea Three.
4.2 In summary both HOW03 and Norfolk Vanguard come to the same conclusions – i.e. no significant impacts from sandwave clearance on relevant MPAs- with the evidence in the Norfolk Vanguard's assessment providing more confidence in the conclusions. Therefore, we are more confident in the conclusions, but there still remains some uncertainty around site specific impacts from the actual cable installation that are set out in the detailed comments below.	
5.1: General: There is no discussion in the application about the fact that even with sandwave levelling cables may be sub optimally buried and require protection or become exposed over the life time of the protect resulting in further impacts to the site.	Paragraph 3.9.2.9 et seq. of Volume 1, Chapter 3: Project Description of the Environmental Statement (APP-058) clearly outlines that during the operation and maintenance phase there is provision for cable remedial burial works of any cables that may become exposed via natural sediment transport processes. This is outlined in the maximum design scenario for benthic ecology in Table 2.14 of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-62) and for marine processes in Table 1.11 of Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061). This activity is assessed in paragraph 2.11.2.145 et seq. of Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement and paragraph 1.11.3.16 et seq. of Volume 2, Chapter 1: Marine Processes of the Environmental Statement.
5.2: Section 2.7: This does not seem to include the same evidence as the Race Bank monitoring note – more survey locations, but fewer years' data. As far as we can tell all the locations they look at are different. The turbine numbers for inter-array cables in this report do not appear to tie up with the map on p 9 of the sandwave recovery report.	The Applicant refers the Ex.A to its response to paragraphs 2.1 and 2.2 of Natural England's response above. The data collected to inform the Race Bank monitoring note also includes post-dredge (recovery) survey data from locations that were not available to inform the Sandwave Clearance Clarification Note (APP-183). Inter-array cable string locations [Z01 – A02] and [C06 – B05] were the labels given to the available survey data at the time of writing the Sandwave Clearance Clarification Note. Additional data at more inter-array cable string locations were collected and available to inform the Race Bank sandwave recovery report which is presented at Appendix 8 to the Applicant's response to Deadline 2.
5.3: Section 2.15: It would be useful to know how the 3 sites that showed no recovery in the post dredge images have fared in the longer term and how this relates to the sites monitored in the Race Bank sandwave recovery report.	The Sandwave Clearance Clarification Note (APP-183) includes data that were collected approximately only one year following clearance whereas the more recent Race Bank sandwave recovery report includes data that were collected approximately two years following clearance. The Sandwave Clearance Clarification Note identified three out of nineteen monitored sandwaves where recovery was apparently

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	limited (one year following clearance). The Race Bank sandwave recovery (presented at Appendix 8 to the Applicant's response to Deadline 2) report consistently reports nearly full or partial recovery at all of the sites where data are presented two years following clearance, including seven sites in the array area and on two sections of the export cable corridor.
5.4: Section 2.16: If this is L, M and N on the pictures then we are not sure we agree with full recovery. We believe that these sites show the changes in the local area, including changes in trough topography. NB: It would be helpful if the text correlated with the pictures.	Whilst the Applicant notes that the bathymetry shown in the post-recovery data is not exactly the same as that pre-dredge, the Applicant notes that the crest level and crest width no longer shows any visible discontinuity at the location of the sandwave clearance activities in the post recovery data (see also the Applicant's response to paragraph 2.4 of Natural England's comments above). With allowance for natural evolution of the seabed over the same period, it is reasonable to describe this as full recovery of the form and function of these features.
5.5: Section 2.18: It would be helpful to understand why only one out of three sites along adjacent sandwaves showed recovery when all 3 were dredged. No obvious reason for this is presented.	Given only a few snapshot surveys, it is not possible for the Applicant to provide a more detailed reason for selective recovery in a particular location. However, this observation in the Sandwave Clearance Clarification Note (APP-183) was made approximately one year following clearance. Whereas, the Race Bank sandwave recovery report (presented at Appendix 8 to the Applicant's response to Deadline 2) consistently reports nearly full or partial recovery approximately two years following clearance at all of the sites where data are presented. It is possible that local natural variability in sediment mobility and supply was sufficient to cause measurable recovery at one location, but not another, during the first year. Measurable recovery is shown to have occurred at all the locations observed at the end of the second year.
5.6: Section 2.19: It could be implied that partial recovery seen is linked to only removing part of the sandwave crest height. How comparable are these examples within the Race Bank works to that within NNS SAC?	Both datasets (i.e. those presented in the Sandwave Clearance Clarification Note (APP-183) and the further Race Bank monitoring data; Appendix 8 to the Applicant's response to Deadline 2) show clear evidence of recovery of sandwaves following different levels of clearance, ranging from removal of part of the sandwave crest height to clearance of sandwaves described as >5m. The consistent pattern shown across these datasets (as well as the Norfolk Vanguard assessment discussed above) shows recovery of sandwaves following clearance. As such, there is high confidence that the assessment is applicable to the range of sandwave clearance activities proposed in all parts of Hornsea Three.
5.7: Section 2.24: Important point that *'There is limited or no evidence of sandwave recovery, evolution or migration at site 10. The dredging at this site is to the base of the sandwave, relative to the depths of the surrounding seabed, and is nearly parallel with the sandwave alignment. As a result, a relatively large area and volume of the sandwave has been levelled. Migration is not apparent in the bathymetry images and if any infilling is occurring it is also not evident. The general lack of notable change suggests an overall lower rate of sediment mobility, rather than any fundamental difference in the processes that are active, or the potential for sandwave recovery over longer timescales at this location.'* Therefore Natural England advises that a pre-construction	The Applicant notes that the evidence presented to date provides high confidence that sandwaves will recover following clearance during the construction phase. Notwithstanding this confidence, the Applicant has committed to robust pre and post construction monitoring of following sandwave clearance operations, as outlined in the updated In Principle Monitoring Plan (REP1-180). The Applicant has also committed to reporting of the locations and volumes of sandwave clearance activities for Hornsea Three. As outlined in response to Natural England's comments in Annex D4 above, these commitments are in line with JNCC's Supplementary Advice on Conservation Objectives (SACO) for the SAC which highlights the need for "longer term monitoring and access to better information taking place within the site'.

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sandwave levelling report and assessment is required to ensure that the results of any further monitoring and specific site characteristics are taken into consideration and the impacts remain within the parameters assessed especially in relation to orientation of levelling to wave and involvement in troughs.	
5.8: Section 2.32: Is the Applicant taking account of differing sediment transport rates along the cable corridor.	The Applicant refers the Ex.A to their response to paragraph 2.6 of Natural England's comment above. Differences in local sediment transport rates and sediment supply were considered as factors when assessing the likely timescale for recovery, with slower recovery in areas of low sediment transport. As such, there is high confidence that the conclusion with respect to sandwave recovery potential is applicable to all parts of Hornsea Three, although the rate may vary depending on environmental conditions.
5.9: Section 2.35: We note that there is some degree of uncertainty in relation to the scale of the impacts discussed here as shown by the use of the word 'may'.	The uncertainty in paragraph 2.35 of the Sandwave Clearance Clarification Note (APP-183) relates to the actual change in the instantaneous or the long term net sediment transport rate that would result from a nominal increase in water depth. The difference in sediment transport rate at any given time will depend on the particular sea state (wave height and period) in comparison to the exact water depth and sediment grain size, and also the particular ambient current speed (which may vary over peak, slack, flood, ebb, neap and spring cycles, etc.). Over longer time periods, the frequency and magnitude of wave contributions to sediment transport is also relatively scaled depending on whether the site experiences stronger or weaker tidal currents, and the degree of asymmetry in those currents. It is therefore appropriate to qualify the statements in this paragraph 2.35 of the Sandwave Clearance Clarification Note with 'may', however, for the non-specific purpose of the example, 'will' could also be used.
5.10: Section 2.43: Please see HRA comments. As there is no link to the conservation objectives we are unable to say if the recovery will be sufficient to meet the conservation objectives for all of the attribute features.	The Applicant refers the Ex.A to their responses to Annex D5 of Natural England's Written Representation (REP1-214). The Applicant considers that the predicted recovery is sufficient to meet the conservation objectives for all designated features such that there will be no effect on the integrity to the sites.
5.11: Figure 3.5: Please see HRA comments. The assumption to date was that the levelling within NNS SAC would be over discrete waves / banks, not levelling across a larger number of smaller features, as shown in the clarification note. This situation may impact differently on the conservation objectives for the site and a more detailed HRA assessment is required before we can agree with the conclusions of the HRA that there is no adverse effect on integrity.	The sandwaves shown in Figure 3.5 of Sandwave Clearance Clarification Note (APP-183) were intended to give an indicative overview of how the sandwave clearance volumes were calculated, rather than the precise nature of the sandwaves within the North Norfolk Sandbanks and Saturn Reef Special Area of Conservation (SAC). The Applicant refers the Ex.A to their responses to Annex D5 of Natural England's Written Representation (REP1-214). The Applicant has provided a robust RIAA (APP-051). As noted above, evidence from a number of sources, consistently show that regardless of the size of the sandwave features affected by clearance operations, recovery will occur, although at different rates depending on the specific environmental conditions. Sandwave clearance activities within the North Norfolk Sandbanks and Saturn Reef SAC therefore do not present a risk to the conservation objectives of the site or result in an adverse effect on site integrity.

Response to Annex E (REP1-114) of Natural England's Written Representation

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4.5.4.2: To clarify, there were two, not three, Expert Working Group meetings held following the Section 42 consultation. These took place on 20.11 2017 and 15.03.2018.	The Applicant agrees and is grateful for the correciton.
Table 4.5, Line 28: In response to Natural England's Section 42 comment: 'While harbour porpoise show a high responsiveness to underwater noise, this does not necessarily imply vulnerability. A full discussion of this has taken place through the EWG and full meeting minutes are presented'.	The Applicant is unsure of the meaning of this comment but assumes that Natural England have no residual concerns on this point.
Fig. 4.4: Natural England requests clarification as to whether the correct key has been used for this figure. Presently the map the key colours either do not match the figure colours, or the higher density colours have been omitted from the key.	Higher density colours have been omitted in error from the key. This figure appeared in the correct form in the PEIR (Figure 3.7 in Annex 4.1 Marine Mammal Technical Report). However, the assessment uses the derived modelled density surface in its entirety, Therefore, it is not considered necessary to undertake any corrective measure as it would have no bearing on the assessment outcome.
4.7.2.27 and Table 4.10: Based on the text provided the, normal foraging range for grey seal is <145 km. We therefore question the inclusion of Berwickshire and North Northumbria Coast SAC in Table 4.10.	Grey seals are known to move large distances and do make large scale movements between haul outs and forging areas, and between different haul outs at ranges of over 145 km. The telemetry data presented in Appendix A of Annex 4.1 Marine Mammal Technical Report (APP-106) indicate a small amount of connectivity between the Hornsea Three site and the Berwickshire and North Northumbria Coast SAC, therefore it was a precautionary approach to include this site for consideration. This was discussed at the Marine Mammal EWG 20/11/2017. The direct reference to "<145 km" as normal foraging range was a hangover from the PEIR and should have been removed from the ES. However this could have no bearing on the outcome of the assessment.
4.7.2.34: Text in para. 4.7.2.32 presents a range of foraging distances for harbour seals, however there is no number given for the 'normal foraging range' on which the site selection for Table 4.11 is based.	Table 4.11 included sites up to 63 km from the Hornsea Three site. In addition, the telemetry data presented in Appendix A of Annex 4.1 Marine Mammal Technical Report (APP-106) was also used to select sites for inclusion in table 4.11, no specific numerical value of the range was defined. Any such definition would have no bearing on the outcome of the assessment.

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Table 4.12: Natural England would like further clarification as to why the JCP Phase III density data has not been used to inform cetacean densities. Natural England considers this to be the most appropriate source of harbour porpoise density data as it represents the predicted average over a period of 4 years and not just a snapshot in one month and one year such as the SCANS III survey.	At the time of writing the Hornsea Three ES chapter, there was some uncertainty over the correctness of the scaled (to SCANS III MU results) JCP III Data Analysis Product that had been made publicly available by JNCC in 2017. This had not been fully resolved at the point that the assessment was carried out, therefore the JCP III density estimates were not explicitly in the quantitative impact assessment. Regardless of this, the JCP III derived estimates of average harbour porpoise density (presented in Annex 4.1, APP-106) of 0.35-1.29, are lower than the highest site specific boat based survey derived estimate of 2.87 porpoises per km2 and therefore basing the assessment on the site specific density estimate as the worst case, is a highly precautionary approach. Furthermore the vast majority of the JCP III data for the Hornsea area is actually derived from the Hornsea Zone boat based surveys and has been scaled downwards. In addition, the following text appears in the JCP II report: "In standardizing the data from so many sources, strong assumptions were made about factors such as detection probability. This results in estimates of abundance that cannot be as reliable as those coming from a well-designed dedicated abundance survey." Therefore the density estimates derived from three such surveys were used to directly inform the assessment (Hornsea Zone boat based surveys, Hornsea Three Aerial surveys and SCANS III survey). This approach was discussed and agreed with the EWG as part of the Evidence Plan process and agreed with the appropriate SNCB, as presented in Table 3.2 of the All other Matters SoCG with Natural England as submitted at Deadline 1 (REP1-218)).
4.11.1.5: Natural England appreciate the 'most likely' piling scenario. It provided very useful context alongside the worst case/maximum design scenarios presented.	Noted. The Applicant has nothing further to add.
4.11.1.33: This section states that 15% of the maximum hammer energy will be employed for 7.5 minutes, ramping up to the maximum hammer energy over 30 minutes. However, Table 3.18 in Chapter 3 Project Description, suggests that this soft start and piling scenario will be completely different (<750 kJ for 45 minutes, 750-1500 kJ for 45 mins etc). Natural England request that the actual soft start to be undertaken is clarified. The RIAA may also need to be updated on the basis of the response.	The Applicant can confirm that the text in Paragraph 4.11.1.33 matches that presented in Annex 3.1 Subsea Noise Technical Report (APP-085)) and represented in the noise modelling upon which the assessment was based. Although there is no difference in maximum hammer energy (5,000 kJ) the modelled scenario was more precautionary as the hammer energy is assumed to increase to maximum levels more rapidly and the piling activity is over a longer duration. The Applicant can therefore confirm that the soft start and piling scenario information presented in the Project Description chapter (APP-058) is not what the assessments (EIA and HRA) were based on therefore there is no need to update either assessment.
4.11.1.72: While Natural England has no issue with using the porpoise response curve for minke whales and dolphins, we would caution on the language suggesting 'harbour porpoises have been shown to be generally more responsive to underwater noise than other species'. The recent ADD trials carried out on minke whales (McGarry et al., 2017) suggested that minke whales are very responsive to noise and therefore potentially could be more responsive than harbour porpoise.	The Applicant welcomes agreement on the use of the harbour porpoise dose response curve for other species. The Applicant would also note that based on comparison of data on responses to the Lofitech ADD from Minke whales (McGarry et al., 2017) and harbour porpoises (Brandt et al., 2011,2012,2013) there is no evidence to suggest that minke whales are necessarily more responsive than harbour porpoises, and therefore the adoption of the harbour porpoise curve for both species, continues to be appropriate.
4.11.1.175: This section seems to infer that UXO clearance	The Applicant is of the opinion that the intention is always for UXO

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could only occur prior to construction. However, Natural England notes, based on experience from other offshore wind farm projects that there is sometimes a need to carry out UXO clearance after the construction works have started. This should be considered when assessing the impacts of UXO clearance cumulatively with other noisy activities.	clearance to be a pre-construction activity for obvious HSE reasons. It is acknowledged that on relatively rare occasions a small number of additional UXO that require clearance are identified during the construction process. However, the overwhelming majority of any such works will always be pre-construction and it is appropriate to assume this within assessments. If (when revisiting the assessment assumptions as part of the SIP process any known UXO works are proposed alongside construction activity for any given project within the in-combination assessment then, clearly they will be included within the assessment accordingly.
Table 4.54: This paragraph is repeating the text from the paragraph above.	Noted. The Applicant has nothing further to add.
Fig. 4.39: Aggregates Area 483 has now received a marine licence and should be screened in to the assessment.	The Applicant has submitted an updated CEA taking into account material changes resulting from projects screened into the assessment since the original assessment (Appendix 16 to Hornsea Three Deadline I Submission: Applicant's Response to Ex.A Question Q1.15.3)
4.13.1.19: The reference to the DEPONS work (van Beest et al., 2015) is not relevant to the CEA. To date the DEPONS model has not been used to undertake a realistic assessment of the potential North Sea wind farm construction.	The reference to the DEPONS work was intended to highlight a modelling simulation modelling exercise which included a simulation of 2064 turbines across 31 offshore wind farms being constructed in the North Sea. Although this simulation was generalised, this scenario represents more offshore wind farms than were included in the CEA and therefore was intended to highlight that under reasonable assumptions, there was no indication of a population level response. The Applicant recognises that the DEPONS model outputs are reliant on assumptions of dispersal behaviour and deterrence time and are only indicative of potential effects. The Applicant also notes that since the submission of the ES, a further simulation using the DEPONS framework has been published[1] which simulates the effect of the construction of 65 wind farms over a 12 year period. The conclusions of this modelling exercise indicated that even under extreme assumptions of individual effect (e.g deterrence distances of 100-200 km), the effect on the size of the harbour porpoise population was temporary and recovery occurred once piling activity had ceased. [1] Nabe-Nielsen, J. et al. 2018. Predicting the impacts of anthropogenic disturbances on marine populations. Conservation Letters. DOI: 10.1111/conl.12563
4.13.1.31 – 3.13.1.35: The information presented in this section is inaccurate - in determining impact the text is saying that estimated 15% percent of the MU harbour porpoises being affected was not significant (Booth et al., 2017) and since Hornsea Three predicts disturbance to 11% of the population then it will not be a significant effect. However, it is not made clear in the text, that the reference population number used in the PCoD assessment was ~227 000 and Hornsea Three assessment is using the latest SCANS III reference population of ~345 000. Therefore it would be incorrect to compare these percentages as the reference populations are different.	The Applicant recognises that the overall size of the management unit abundance has increased from ~227000 to ~345000 since the work by Booth et al. (2015). However, the Applicant maintains that expressing the relative amounts of impact as a percentage of total abundance is a valid and widely used method to enable comparison between two scenarios differing in absolute values. Given that larger populations are more resilient to impacts than smaller populations, the Hornsea Three assessment of a lower proportional magnitude (11% compared to 15%) relative to a larger overall population size will be more precautionary than that presented in the Booth et al. assessment.

Interested Party's Written Representation	Applicant's Response
Table 4.59: The table legend should state 'harbour porpoise' rather than 'minke whale'.	Noted. The Applicant has nothing further to add.
4.13.1.73, 4.13.1.74: This is the first time the international importance/conservation value of marine mammals has been mentioned within the assessment since the introduction.	The Applicant acknowledges that this text is a hangover from the PEIR assessment which did incorporate importance/conservation value of marine mammals. It was recognised during the assessment process that as all marine mammals have a high degree of international protection, this concept was not an appropriate differentiator in the impact assessment framework. The impact assessment methodology was agreed with Natural England (as presented in Table 3.2 of the All other Matters SoCG with Natural England as submitted at Deadline I (REP1-218)).
4.13.1.86, 4.13.1.94, 4.13.1.100: These paragraphs require removal as they are a relic from the PEIr text.	Noted. The Applicant has nothing further to add.
5.1.3.2: It is not clear why the 'average' value was only used for the single strike criteria.	The Applicant can clarify that the 'average' value is the average piling hammer energy used across all piling activity and was intended to indicate the average level of disturbance that could be expected over all pile driving activity - the metric used to assess disturbance was the single strike SEL metric. The other metric used the assessment, the multiple strike SELcum, is an estimate of the total amount of sound energy accumulated by a single receptor over a single piling event, therefore the SELcum metric cannot be determined for an overall 'average' hammer energy calculated over all foundation installations.
To note: The Marine Mammal Mitigation Plan (MMMP) will need to mitigate to 1.5 km to protect minke whales from PTS.	The Applicant acknowledges that 1.5 km represents the worst case PTS impact range. The predicted impact ranges for each species will be considered in the development of the MMMP when the final project parameters are available. This is agreed with respect to the MMMP in Table 3.2 of the All other Matters SoCG with Natural England as submitted at Deadline I.
Table 6.5: The values in this table are different to Table 4.8 in the marine mammals chapter. For the visual boat based (Hornsea 3 plus 4 km buffer) the total should be 2,165 rather than 165. In addition, the density estimate for aerial video is different: 1.019 in the marine mammals chapter and 0.912 in the RIAA. Could the correct values be confirmed?	The Applicant can confirm that the correct value for the Aerial video density estimate should be 1.019 as presented in the marine mammal ES chapter and Annex 4.1 (APP-064 and APP-106). However, as the RIAA was based on an area based approach, this error has no bearing on the outcome of the assessment.
6.5.2.71: Natural England is unclear based on this paragraph, how the return times have been factored into the calculations and request further clarification on this issue.	The Applicant can confirm that when quantifying the percentage area across the season, due to the number of days within a season already incorporating piling, plus the addition of return time, the calculations were based on the prediction of disturbance occurring every single day during the summer season.

Ms K Paul, Mr D Brown & Mr W Barr (Trustees of the Gurloque Settlement) (REP1-249)

Summary

2.96 This response extends to the written representations submitted by Affected Persons as identified in the Book of Reference (APP-033).

Response to Ms K Paul, Mr D Brown & Mr W Barr (Trustees of the Gurloque Settlement)

Interested Party's Written Representation	Applicant's Response
1.0 Introduction 1.1 This statement is our response, submitted on behalf of our client to the underground cable route proposed as part of the Hornsea Project Three Offshore Wind Farm. The Trustees hold land to the North East of Hethersett in Norfolk as part of a long held property portfolio of land with strategic development value. 1.2 It is our belief that the proposed route for the underground cable, and the associated protective zone, will frustrate intended development of our client's property. The following gives background information on intended proposals for this part of our client's land.	The Applicant would refer to Annex 4 of the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-067 and the Applicant's Response to the ExA's First Written Question Q1.9.1 (REP1-122).
2.0 Background Existing Planning Context 2.1 The Joint Core Strategy (JCS) for Broadland, Norwich and South Norfolk (adopted in March 2011 with amendments adopted January 2014) is the key planning policy document for the Greater Norwich area. It forms part of the Local Plans for the districts of Broadland, Norwich and South Norfolk setting out the broad vision for the growth of the area and containing strategic policies for the period 2008 – 2026 2.2 The JCS identifies Hethersett as a strategic growth location, allocating at least 1,000 homes at Hethersett. As Hethersett is located within the Norwich Policy Area (NPA), it was also eligible to accommodate a share of the 1,800 'floating' numbers to be provided for through additional smaller sites within the South Norfolk NPA. These 'floating' numbers were not allocated to any particular location but spread across the NPA with all NPA settlements eligible for an increase in numbers above those allocated within the JCS 2.3 The South Norfolk Site Specific Allocations & Policies Document (adopted in October 2015) is part of the South Norfolk Local Plan. It designates areas of land for particular uses, most notably land to deliver housing for the period up to 2026. It allocates 1,354 new homes within Hethersett. These comprise the HET1 allocation for 1,196 homes to the north of Hethersett reflecting the outline planning permission granted in July 2013 (ref. 2011/1804/O), together with an allocation to the north-west that has already been constructed and largely completed by Avant Homes (151 homes permitted by planning permission ref. 2015/0635 2.4 It is of note that earlier drafts of the JCS proposed 4,000 new homes at Hethersett reflecting that it is a highly sustainable location and providing a clear indication of its ability to accommodate further growth beyond the current allocation sites.	The Applicant would refer to Annex 4 of the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-067 and the Applicant's Response to the ExA's First Written Question Q1.9.1 (REP1-122).
The Emerging Local Plan 2.5 Broadland District Council, Norwich City Council and South Norfolk Council are working together with Norfolk County Council to prepare the Greater Norwich Local Plan (GNLP),	The Applicant would refer to Annex 4 to the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-067 and the Applicant's Response to the ExA's First Written Question Q1.9.1 (REP1-122).

Interested Party's Written Representation	Applicant's Response
which will build on the established joint working arrangements for Greater Norwich, which have delivered the current JCS 2.6 The GNLP will include strategic planning policies to guide future development within Norwich, Broadland and South Norfolk for the period to 2036. The draft strategy (as set out in the Growth Options Document, January 2018) sets out a requirement for 42,887 newhomes during the period from 2017 to 2036, of which 7,200 require new sites to be allocated 2.7 In order to meet the housing requirement, the Growth Options Document sets out 6 strategic growth options, all of which would see additional growth directed to the South West NPA. 2.8 In this context Hethersett remains a highly sustainable location for further development within the emerging GNLP. It benefits from being in close proximity to Norwich with excellent road links from the A11 and A47, together with a park and ride site adjoining Hethersett at Thickthorn 2.9 Hethersett is also extremely well located in relation to the University of East Anglia (UEA), Norfolk and Norwich University Hospital (NNUH) and high-tech jobs at Norwich Research Park (NRP) with a new dedicated cycle link providing easy access from Hethersett 2.10 Hethersett benefits from a good range of local shops and services and the current development will see the provision of a new Primary School and expansion of the High School 2.11 Under the current emerging GNLP, the South West growth location, which includes Hethersett will need to accommodate up to 1,500 new homes for the period to 2036. The evidence base confirms that of the three settlements that make up the South West growth location, the other two (Cringleford and Little Melton) have limited scope for growth and therefore the majority of growth will be at Hethersett.	
Land at Hethersett 2.12 Land to the east and south-west of Hethersett are constrained for development by strategic gaps providing separation from Cringleford and Wymondham respectively. In addition, land to the south is also constrained by heritage considerations as well as the Cringleford strategic gap to the south-east. Accordingly, the land to the north and west of Hethersett being promoted for a consortium of landowners, of which our client is a member, as the logical location for development to take place to accommodate up to 1,500 homes. 2.13 The GNLP Site Proposals document published in January 2018 confirms the suitability of Hethersett for significant further growth. It emphasises that Hethersett is a major growth location and that it has a wide range of services with good access to the A47, N&N/NRP and Wymondham, extending the number of services accessible within a short distance. 2.14 The eminent sustainability of Hethersett combined with its existing constraints (south-west, south and south-east) mean	The Applicant would refer to Annex 4 to the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which provides a full response to RR-067 and the Applicant's Response to the ExA's First Written Question Q1.9.1 (REP1-122).

Interested Party's Written Representation	Applicant's Response
that it is highly likely that land to the north and west of Hethersett will come forward for development, either through an allocation within the GNLP or through an early planning application on the basis of the 5 year housing land supply position within the NPA.	
Impact of the Proposed Cable Route for land north and west of Hethersett 2.15 The current Orsted cable route as shown on drawing no. 088/007 would result in approximately 9.8 hectares of residential development land being sterilised. At a typical density of 30 dwelling per hectare this would result in the loss of approximately 294 dwellings. 2.16 Drawing no. 0088/008 shows a proposed alternative cable route alignment that would avoid the proposed residential development land to the south of Little Melton Road and minimise the loss of residential development land to the east of Burnthouse Lane. The proposed alternative cable route, would result in 1.86 hectares of proposed residential development land being sterilised, with a resultant loss of 55 dwellings at an assumed density of 30 dwelling per hectare 2.17 The amendments to the proposed cable route as shown on drawing no. 0088/008 would therefore result in significantly less residential development land being sterilised than the currently proposed route.	Discussions are ongoing between the Applicant and the landowner regarding the potential loss of development and the Applicant is seeking to enter into a voluntary agreement that makes provision for future development. Should compulsory powers be used in the absence of a voluntary agreement there are provisions for dealing with development land in the Compensation Code. Further information is set out in paragraph 11.2 of the Statement of Reasons [APP-032]. The Applicant would refer to Annex 4 of the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131) which sets out the reasons why the alternative route proposed is not suitable.
3.0 Conclusion 3.1 It is our client's belief that the Orsted proposals fail to consider the development proposals that are intended for this part of Greater Norwich. We believe that the cable route will potentially sterilise important development areas and compromise proposed layouts. 3.2 Our client respectfully requests that the points contained in this statement are fully considered within the examination process. Our intention is to submit a full written representation in due course and, if required, request that we can make oral representations if necessary.	The Applicant has responded to the individual points of this representation above.

Network Rail Infrastructure Limited (REP1-251)

Summary

2.97 This response extends to the written representations submitted by Affected Persons as identified in the Book of Reference (APP-033).

Response to Network Rail Infrastructure Limited

Interested Party's Written Representation	Applicant's Response
Introduction 1.1 This written representation (Written Representation) is submitted on behalf of Network Rail Infrastructure Limited (Network Rail) in response to the application by Orsted Hornsea Project Three (UK) Limited (Applicant) for Hornsea Project Three Offshore Wind Farm (DCO). The DCO seeks development consent for the authorised development described in Schedule 1 (Proposed Development). 1.2 Network Rail submitted a section 56 representation [AS-010] on 15 September 2018. 1.3 Network Rail owns, operates and maintains the railway infrastructure of Great Britain. It does so pursuant to a network licence granted under section 8 of the Railways Act 1993.	Noted
1.4 Network Rail does not object in principle to the DCO. However, Network Rail objects to the compulsory acquisition and extinguishment of rights in operational or third party land on which it relies for the carrying out of its statutory undertaking as these matters can be dealt with by private agreement and by the appropriate protective provisions being in place, as described in this Written Representation. 1.5 In order for Network Rail to be in a position to withdraw its objection to the DCO Network Rail requires: (a) agreement from the Applicant that the acquisition of land and rights over operational and third party land (including the extinguishment of any rights and restrictions on such land) is on terms agreed with Network Rail for the protection of its statutory undertaking, and that compulsory powers will not be exercised in relation to such land; and (b) sufficient protection for Network Rail's statutory undertaking is put in place for the carrying out of works over and/or in the vicinity of the operational railway network. 1.6 Network Rail and the Applicant are engaging in negotiations and Network Rail is hopeful that any concerns can be resolved during the course of the Examination. In the absence of reaching agreement to safeguard its interests, Network Rail, as an interested party, may seek to be heard at the Issue Specific Hearing [ISH3] into the draft DCO and at any further issue specific hearings on the DCO. 1.7 Network Rail and the Applicant have agreed that a Statement of Common Ground is not necessary at this stage but if matters of disagreement remain between the parties at the next appropriate deadline [Deadline 4], a Statement dealing with these matters shall be submitted to the ExA.	The Applicant will continue liaising with Network Rail to agree the drafting of the protective provisions to be included in the DCO and is currently assessing the recent changes suggested by Network Rail. In the event that agreement cannot be reached, the Applicant considers that the protective provisions in the draft DCO provide adequate protection for Network Rail's apparatus and the operation of its undertaking.

Interested Party's Written Representation	Applicant's Response
Impacts on the Railway 2.1 Network Rail has interests in parcels of land (Land Parcels) identified in the Book of Reference and the associated Land Plans submitted with the application for the DCO. The Land Parcels include 2 sites where Network Rail benefits from rights or owns and occupies the land referred to as being land inside the boundary of the DCO, namely Land Parcels 3-018 and 30-028. 2.2 The Applicant proposes to undertake Works No. 8, as defined in the DCO, in relation to the Land Parcels. 2.3 Land Parcel 3-018 relates to a heritage railway which is not operational railway owned by Network Rail but is owned and operated by North Norfolk Railway. In relation to this Land Parcel, Network Rail wishes to transfer its rights and release the restrictive covenants by private agreement with the Applicant. 2.4 The works proposed to Land Parcel 30-028 affect the Breckland line; an operational railway line that links Cambridge in the west to Norwich in the east. 2.5 Work No. 8 (as described in the DCO) would permit the Applicant to install, retain, maintain and alter underground electricity cables (up to six cable circuits), and other ancillary apparatus and any other works deemed necessary, underneath the Breckland line. To undertake these works the Applicant is seeking powers to use land temporarily and to acquire rights permanently. 2.6 In relation to the proposed works to the Breckland line, unless the private agreements referred to in this Written Representation are agreed with the applicant and completed, Network Rail confirms that the Proposed Development will have a detrimental impact on the operation of the railway and will prevent it operating the railway safely and efficiently and in accordance with its Network Licence. 2.7 Network Rail's engineers are considering the possible impact of electro-magnetic interference (EMI) that may be emitted from the Proposed Development and will update the ExA once the results of the assessment are known.	The Applicant notes the comments regarding Land Parcel 3-018, in particular the confirmation that Land Parcel 3-018 is not an operational railway owned or operated by Network Rail. The Applicant therefore considers that there is no need for protective provisions for the benefit of Network Rail to be included in the DCO in respect of Land Parcel 3-018. The Applicant will continue to discuss with Network Rail the terms of any voluntary agreement for the release and transfer of rights. In respect of works affecting Land Parcel 30-028, the Applicant refers to the protective provisions in the draft DCO which already provide sufficient protection for Network Rail as all works need to be approved by Network Rail (see paragraph 5 of Part 5 of Schedule 9 (REP1-133). The Applicant therefore considers that the absence of a private property agreement will not result in a detrimental impact on the operation of the railway or prevent Network Rail from operating the railway safely and efficiently in accordance with its Network Licence. However, the Applicant will continue to discuss with Network Rail the terms of a voluntary property agreement for the necessary rights.

Interested Party's Written Representation	Applicant's Response
Compulsory acquisition of rights over operational and third party land 3.1 Network Rail considers that there is no compelling case in the public interest for the compulsory acquisition of, or the use by the Applicant of, the Land Parcels as the Applicant and Network Rail should instead negotiate these matters by private agreement. As referred to above, unless matters are resolved by private agreement the Proposed Development will prevent Network Rail operating the operational railway safely and in accordance with its Network Licence. 3.2 Network Rail also considers that the Secretary of State, in applying section 127 of the Planning Act 2008, cannot conclude that new rights and restrictions over the railway land can be created without serious detriment to Network Rail's undertaking; and no other land is available to Network Rail which means that the detriment can be made good by them. 3.3 Network Rail and the Applicant have begun discussions to ensure that appropriate arrangements are agreed, as follows: i) options to grant easements and a form of easement to provide the Applicant with the necessary rights in relation to Land Parcel 30-028; and ii) a deed of release, in Network Rail's standard form, in relation to Land Parcel 3-018.	The Applicant disagrees with Network Rail's position and considers that there is a compelling case in the public interest for there to be no impediment to the delivery of Hornsea Three. The test set out in s127 of the PA 2008 can be satisfied through the inclusion of protective provisions in the DCO notwithstanding that powers of compulsory acquisition for new rights and restrictions are being sought over railway land. This approach is supported by paragraph 95 of the Secretary of State's decision for the National Grid (Hinkley Point C Connection Project) Order 2016.
Protective Provisions 4.1 In the Panel's Written Questions and Requests for Information issued on 9 October, the Panel asked [Q1.14.31] whether NR is satisfied that its interests and those of the train operators who use Network Rail's infrastructure are adequately protected. In answer to that question, the protective provisions included within Part 5 of Schedule 9 to the DCO for the benefit of Network Rail (DCO Protective Provisions) are not sufficient. 4.2 The Applicant and Network Rail are in ongoing discussions regarding these provisions and Network Rail is hopeful that the outstanding matters can be resolved soon. Network Rail will update the ExA at the next appropriate deadline regarding any outstanding matters of disagreement and, if necessary, in advance of ISH3 into the draft DCO. 4.3 The changes proposed by Network Rail to the protective provisions are shown in Annex 1 to this written representation (NR Protective Provisions). 4.4 Network Rail will also require (by private agreement with the Applicant) that, notwithstanding the wording in the DCO Protective Provisions that may be confirmed by the Secretary of State, the NR Protective Provisions that are agreed between the parties during the course of the Examination will be complied within in any event.	The Applicant will continue liaising with Network Rail to agree the drafting of the protective provisions to be included in the DCO. In the event that agreement cannot be reached, the Applicant considers that the protective provisions in the draft DCO provide adequate protection for Network Rail's apparatus and the operation of its undertaking.

Interested Party's Written Representation	Applicant's Response
Asset protection 5.1 Network Rail will not be in a position to withdraw its objection to the DCO unless sufficient protections are put in place for the carrying out of work over, under and/or in the vicinity of the operational railway, namely Land Parcel 30/028. These works comprise both temporary use of Network Rail's land during the construction phase as well as works of a permanent nature. 5.2 In respect of all of these works, Network Rail requires asset protection agreements to be put in place to secure: (a) that no works shall be carried out without Network Rail's prior approval of the plans, specification, method statement and programme of works; (b) full access rights, during both the construction and operation phases, are retained for the benefit of Network Rail to enable the carrying out of all necessary maintenance, repair, renewal, inspection and enhancement works; (c) recovery of Network Rail's legal and professional fees, costs and disbursements incurred in connection with the proposals to carry out the works and any other costs incurred by Network Rail arising out of the construction, operation and maintenance of the works; and (d) no work will be carried out unless and until all consents, licences, registrations and authorisations (including any statutory or regulatory consents) are in place. 5.3 Network Rail requires these protections to be secured prior to any third party works being undertaken on, or in, proximity to operational land and its objection to the DCO shall remain in place until such an agreement has been entered into.	Paragraph 5 of Part 5 of Schedule 9 of the draft DCO (REP1-133) sets out the consenting and approval process for carrying out works over, under and/or in the vicinity of the operational railway. The Applicant considers that the protective provisions in the draft DCO provide sufficient protection for Network Rail and there is no need for the Applicant to enter into a separate asset protection agreement with Network Rail. However, the Applicant will continue liaising with Network Rail to agree the drafting of the protective provisions to be included in the DCO.

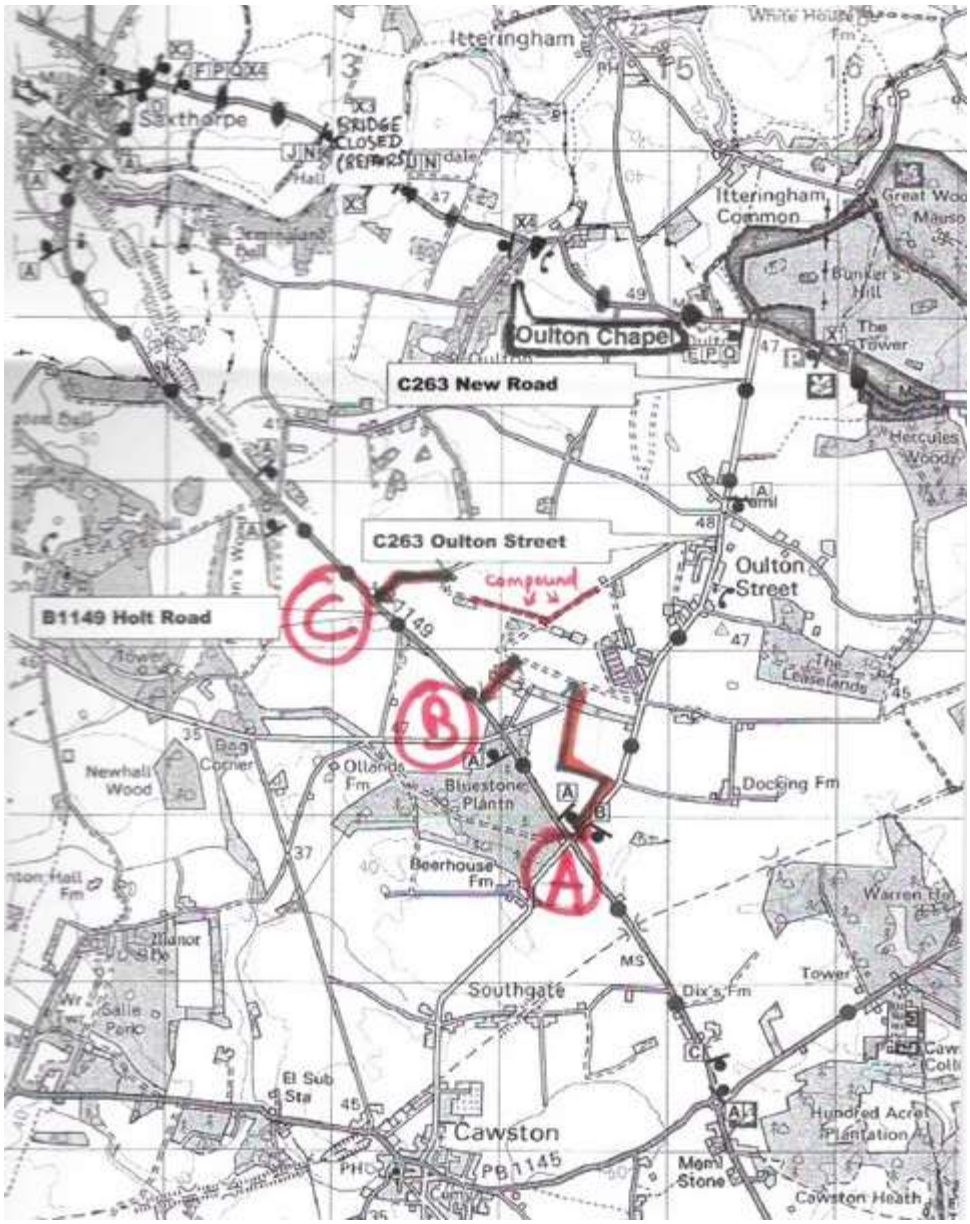
Interested Party's Written Representation	Applicant's Response
6 Conclusions 6.1 Network Rail does not object in principle to the Proposed Development. However it strongly objects to the proposed compulsory and permanent acquisition of rights over operational land and the inadequate protective provisions in the DCO. Network Rail considers that these matters should be dealt with by private agreement. 6.2 The Protective Provisions that NR wishes to be included in the DCO are appended to this Written Representation. 6.3 Network Rail considers that the Secretary of State cannot allow the DCO to be granted without amendment, as the test in section 127 of the Planning Act 2008, cannot be satisfied. The Proposed Development would result in serious detriment to Network Rail's undertaking and Network Rail does not have any other land available to it which could be used to avoid such detriment. 6.4 Network Rail is considering the possible impact of EMI that may be emitted by the operation of the Proposed Development and will update the ExA at the next appropriate deadline. 6.5 Network Rail is in ongoing discussions with the Applicant but until such time as Network Rail is given the protection and assurances requested as detailed in this Written Representation, Network Rail's objection to the DCO will not be withdrawn. Addleshaw Goddard LLP 7 November 2018 Appendix 1 - NR Protective Provisions (not replicated here)	The Applicant has responded to the individual points of this representation above.

3. Annexes

Annex A - Option 'R' Alternatives submitted by Oulton Parish Council

The Applicant would note that the following two maps were submitted by Oulton Parish Council Working Group on 12 November 2018. These maps provide context to the information presented in REP1-046.

Option R – Map 1



Option R – Map 2