East Anglia ONE North and East Anglia TWO Offshore Windfarms

Applicants' Comments on Natural England's Deadline 6 Submissions

Applicant: East Anglia TWO and East Anglia ONE North Limited
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Applicable to East Anglia ONE North and East Anglia TWO

Revision Summary				
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Description of Revisions			
Rev	**Page**	**Section**	**Description**
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Glossary of Acronyms

AIC	Akaike Information Criterion
AONB	Area of Outstanding Natural Beauty
APP	Application Document
DCO	Development Consent Order
DML	Deemed Marine Licence
ECP	England Coastal Path
EIA	Environmental Impact Assessment
ES	Environmental Statement
HRA	Habitats Regulation Assessment
IPMP	In-Principle Monitoring Plan
ISH	Issue Specific Hearing
LCA	Landscape Character Assessment
LVIA	Landscape and Visual Impact Assessment
MMO	Marine Management Organisation
NE	Natural England
NPPF	National Planning Policy Framework
NPS	National Policy Statement
OTE	Outer Thames Estuary
OWF	Offshore Windfarm
RTD	Red-Throated Diver
SCHAONB	Suffolk Coasts and Heaths Area of Outstanding Natural Beauty
SCP	Suffolk Coastal Path
SIP	Site Integrity Plan
SPA	Special Protected Area
SPR	ScottishPower Renewables
UXO	Unexploded Ordnance
ZTV	Zone of Theoretical Visibility

Glossary of Terminology

Applicant	East Anglia TWO Limited / East Anglia ONE North Limited
Construction operation and maintenance platform	A fixed offshore structure required for construction, operation, and maintenance personnel and activities.
East Anglia ONE North project	The proposed project consisting of up to 67 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia ONE North windfarm site	The offshore area within which wind turbines and offshore platforms will be located.
East Anglia TWO project	The proposed project consisting of up to 75 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia TWO windfarm site	The offshore area within which wind turbines and offshore platforms will be located.
European site	Sites designated for nature conservation under the Habitats Directive and Birds Directive, as defined in regulation 8 of the Conservation of Habitats and Species Regulations 2017 and regulation 18 of the Conservation of Offshore Marine Habitats and Species Regulations 2017. These include candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas.
Generation Deemed Marine Licence (DML)	The deemed marine licence in respect of the generation assets set out within Schedule 13 of the draft DCO.
Horizontal directional drilling (HDD)	A method of cable installation where the cable is drilled beneath a feature without the need for trenching.
Inter-array cables	Offshore cables which link the wind turbines to each other and the offshore electrical platforms, these cables will include fibre optic cables.
Jointing bay	Underground structures constructed at intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.
Landfall	The area (from Mean Low Water Springs) where the offshore export cables would make contact with land, and connect to the onshore cables.
Link boxes	Underground chambers within the onshore cable route housing electrical earthing links.
Meteorological mast	An offshore structure which contains metrological instruments used for wind data acquisition.
Mitigation areas	Areas captured within the onshore development area specifically for mitigating expected or anticipated impacts.
Marking buoys	Buoys to delineate spatial features / restrictions within the offshore development area.

Monitoring buoys	Buoys to monitor *in situ* condition within the windfarm, for example wave and metocean conditions.
Natura 2000 site	A site forming part of the network of sites made up of Special Areas of Conservation and Special Protection Areas designated respectively under the Habitats Directive and Birds Directive.
Offshore cable corridor	This is the area which will contain the offshore export cables between offshore electrical platforms and landfall.
Offshore development area	The East Anglia TWO / East Anglia ONE North windfarm site and offshore cable corridor (up to Mean High Water Springs).
Offshore electrical infrastructure	The transmission assets required to export generated electricity to shore. This includes inter-array cables from the wind turbines to the offshore electrical platforms, offshore electrical platforms, platform link cables and export cables from the offshore electrical platforms to the landfall.
Offshore electrical platform	A fixed structure located within the windfarm area, containing electrical equipment to aggregate the power from the wind turbines and convert it into a more suitable form for export to shore.
Offshore export cables	The cables which would bring electricity from the offshore electrical platforms to the landfall. These cables will include fibre optic cables.
Offshore infrastructure	All of the offshore infrastructure including wind turbines, platforms, and cables.
Offshore platform	A collective term for the construction, operation and maintenance platform and the offshore electrical platforms.
Platform link cable	Electrical cable which links one or more offshore platforms. These cables will include fibre optic cables.
Safety zones	A marine area declared for the purposes of safety around a renewable energy installation or works / construction area under the Energy Act 2004.
Scour protection	Protective materials to avoid sediment being eroded away from the base of the foundations as a result of the flow of water.
Transition bay	Underground structures at the landfall that house the joints between the offshore export cables and the onshore cables.
Transmission DML	The deemed marine licence in respect of the transmission assets set out within Schedule 14 of the draft DCO.

1 Introduction

1. This document presents the Applicants' comments on Natural England's (NE) Deadline 6 submissions as follows.

   - ***Section 2*** – NE Appendix A17 [REP6-113]: NE's Comments on Displacement of Red-throated Divers in the Outer Thames Estuary SPA;
   - ***Section 3*** – NE Cover Letter [REP6-112] and Appendix E3b [REP6-114] – NE's Comments on Applicant's Comments on NE Deadline 3 Submission (AONB) [REP5-021]; and
   - ***Section 4*** – NE Appendix G4 [REP6-114] – NE comments on EA1N/EA2 Updated DCO Application

2. This document is applicable to both the East Anglia TWO and East Anglia ONE North DCO applications, and therefore is endorsed with the yellow and blue icon used to identify materially identical documentation in accordance with the Examining Authority's procedural decisions on document management of 23rd December 2019 (PD-004). Whilst this document has been submitted to both Examinations, if it is read for one project submission there is no need to read it for the other project submission. This is with the exception of ***section 3*** which is relevant to East Anglia TWO only.

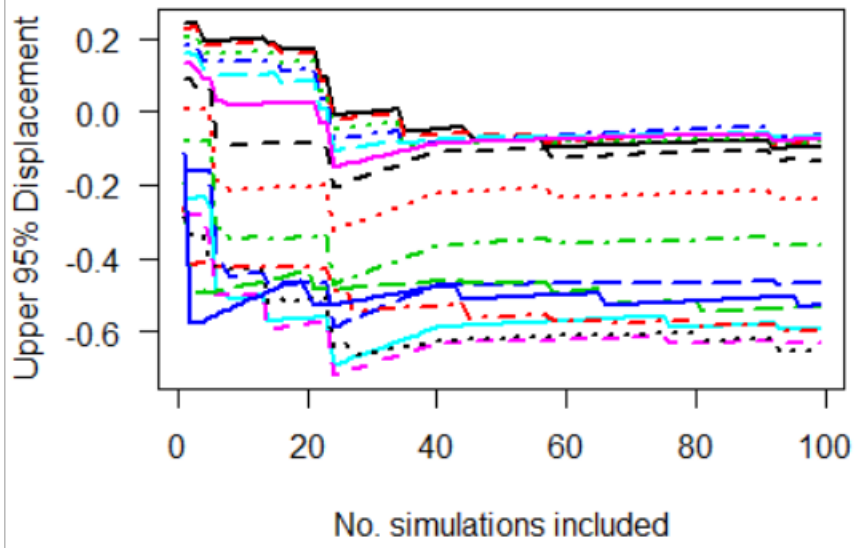
2 Applicants' Comments on NE Appendix A17 [REP6-113] – NE's Comments on Displacement of Red-throated Divers in the Outer Thames Estuary SPA – Update [REP5-025]

Ref	NE Comment	Applicants' Comments
Summary of NE's Position		
1	Natural England raised a number of **fundamental** concerns on the red-throated diver (RTD) Displacement document submitted at Deadline 3 [REP3-049], these are set out in [REP4-087]. We note that the key points raised by Natural England have not been addressed, and the Applicant does not propose to re-visit the modelling to address the issue of the change in survey platform, or to carry out any further validation. **Therefore, we continue to advise that the Applicant should address these outstanding points and that our advice on displacement of SPA divers remains unchanged.**	The Applicants disagree with NE's assertion that 'the key points' have not been addressed and consider that comprehensive responses to each of the points raised in REP4-087 were provided in REP5-015 and REP5-025.
2	Notwithstanding Natural England's ongoing concerns that the modelling approach is underestimating the level of displacement, it is important to note that **even using the Applicant's modelling outputs, which we do not accept, an adverse effect on integrity on the Outer Thames Estuary SPA from East Anglia ONE North alone cannot be ruled out.** This conclusion is based on the assumption that if displacement extends to at least 7km from the OWF then more than 1% of the total area of supporting habitat within the SPA will no longer be able to support the same density and distribution of red throated diver in the presence of EA1N.	The Applicants maintain their position that the modelling is robust, and that ecological consequence must be taken into account. Note that using the Applicants' model the total effective area of the SPA estimated to be subject to displacement is between 0.4 and 0.5% (see ***Table 9*** of REP6-019).

Ref	NE Comment	Applicants' Comments
3	As set out in our comments on the Applicant's HRA Derogation case [REP5- 082] we advise that full consideration is given to a revised project design to enable at least a 10km buffer between the Outer Thames Estuary SPA and the EA1N array, in order to avoid an adverse effect.	The Applicants provided an explanation for why this consideration is not feasible for these projects in ***Applicants' Comments on Natural England's Deadline 5 Submissions*** (REP6-030).
4	In addition, impacts from EA2 also need to be taken into consideration in the assessment for the area 8-12km from the SPA boundary. We continue to advise that an adverse effect on integrity cannot be ruled out for EA2 in-combination with other plans and projects.	The Applicants acknowledge NE's position with respect to the potential for East Anglia TWO to exert a displacement effect between 8-12km. However, the Applicants disagree that this will occur and that there will be a resultant redistribution of individuals within the SPA, as suggested by NE. The Applicants' modelling, the basis and results of which have been defended against NE's comments in REP5-015 (and below), does not support the presence of an effect at these distances. Furthermore, even if NE's approach is taken, the magnitude of effect will be extremely small. The area of the SPA within 11.5km of East Anglia TWO is 20km^2, which is 0.5% of the SPA. The density of red-throated divers in this part of the SPA at designation was in the 0.62-1.5 birds km^2 band (O'Brien et al. 2012) and in the most recent surveys was between 0.01-2.0 birds/km^2 (i.e. despite the change in estimated abundance the densities in this area are almost identical) thus between 12 and 30 individuals might be present in this part of the SPA, of which up to 15% might be displaced (based on a straight-line relationship from 100% at 0km to 0% at 12km). Thus between 2 and 5 individuals might be at risk of displacement (i.e. a maximum of 0.03% of the SPA population), and of these, no more than 0.5 individuals might suffer mortality (at a 10% mortality rate). For context, the maximum turbine density in East Anglia TWO will be 1.04 turbines/km^2, at a minimum spacing of 800m by 1200m. This is very similar to the spacing of the divers considered at risk of displacement by East Anglia TWO of between 816m and 1270m.

Ref	NE Comment	Applicants' Comments
Summary of NE's Position on RTD displacement modelling		
5	The Applicant argues that, regardless of the points raised by Natural England, their modelling and resulting predictions of displacement are robust. However, a fundamental question remains; why does the Applicant's modelling predict a reduction of RTD density of 33% within the windfarm footprint, whereas every one of the eight empirical studies, including several within the Outer Thames Estuary (OTE) SPA, consistently report levels of RTD displacement within the windfarm footprint which are much higher? Although displacement of 55% has been reported at London Array, most empirical studies concerning the OTE SPA have observed higher rates of displacement from operational windfarm sites, generally between 78% and 95%. Whilst it is acknowledged that the extent of displacement outside of the array itself varies between different studies, there is consistency across all empirical studies in reporting a high level of displacement within the windfarm footprint itself. This strongly suggests there is an issue with the Applicant's modelling which remains to be resolved.	The Applicants provided a response to this point in REP5-015 (no. 017), which highlighted the fact that the higher displacement rates reported were all derived from studies which collected diver data using boat-based surveys, which may have resulted in observer effects due to the known avoidance of boats exhibited by this species. Thus, the Applicants consider that the fact that there is consistency between these studies is more likely to reflect this aspect than indicative of a reliable benchmark for comparison. The Applicant would also like to highlight that NE has repeatedly stated these studies are empirical while the Applicant's study is modelling (with an implicit suggestion that the former holds more weight). This is a false distinction, since the older studies present analysis (i.e. modelling) to derive their estimates, while the current study has analysed survey data (i.e. empirical data). There is no fundamental difference between these studies.
Use of Novel Methodologies		
6	One issue arising within the report is that some of the displacement assessment methods, particularly those around the buffer zone analysis and generation of the counterfactuals, are novel as far as Natural England is aware (i.e. not in the published literature). Therefore, the onus is on the Applicant to clearly demonstrate that the buffer zone and counterfactual methodologies are scientifically robust. These would require further sensitivity analyses or references to past work / precedence (as well as addressing other methodological concerns) before Natural England would accept the outputs of the modelling.	The Applicants will provide a response to this point at Deadline 8

Ref	NE Comment	Applicants' Comments
ANNEX 1. Detailed technical comments on [REP5-025] Displacement of Red-Throated Divers in the Outer Thames Estuary SPA - Update		
7	1) Bootstrap replicates Natural England welcomes the application of a bootstrap resampling method to calculate confidence intervals around the buffer zone analysis. However, the Applicant's use of only 100 bootstrap replicates appears to be arbitrary and potentially restrictive as bootstrap tests frequently utilise thousands of replicates. We advise that testing of the appropriate number of bootstrap replicates should be carried out to properly assess this uncertainty (Davidson and MacKinnon, 2000; Andrews and Buchinsky, 2002).	The selection of 100 bootstraps was an expedient decision to provide a response within the examination timescales, since the models are time consuming to run (this sample size took 72 hours of continuous simulation to obtain). Furthermore, the results obtained, when plotted cumulatively (i.e. the estimated upper and lower confidence estimates for each of the 16 buffer distances) calculated using 2, 3, up to 100 simulations reveals that this number is more than adequate since the lines have reached asymptotes by 40 to 70 simulations (note no ordering was applied to the bootstrap samples – these plots represent the random sequence of simulations). Additional simulations would make no material difference to the confidence intervals.


Upper 95% Displacement
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-0.6
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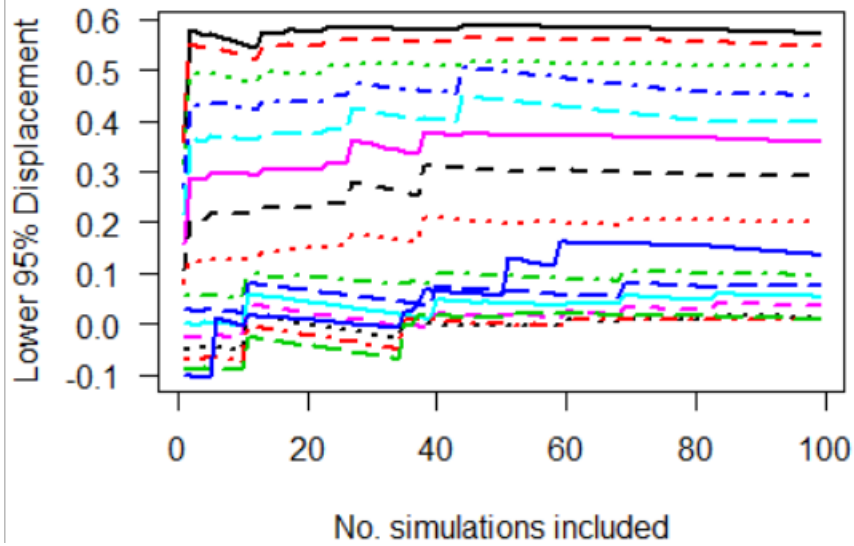
40
60
80
100
No. simulations included


Lower 95% Displacement
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80
100
No. simulations included

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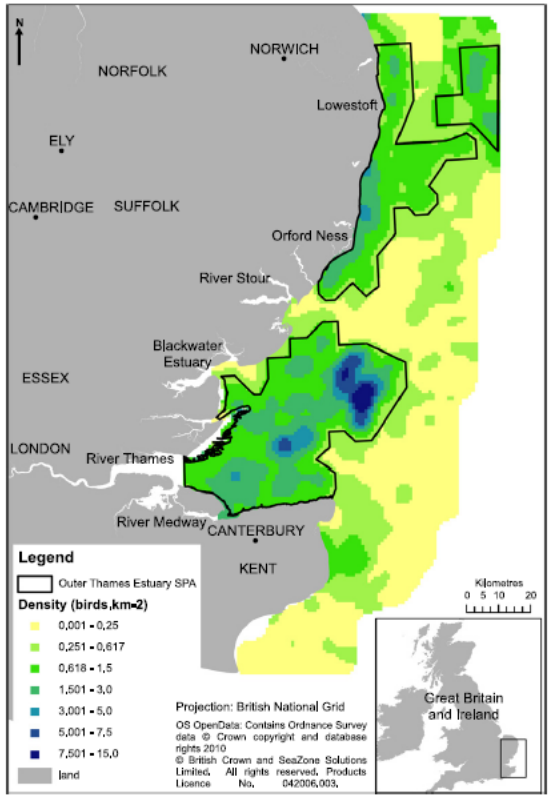
8 & 9	2) Accounting for Different Survey Methods The Applicant continues to not take account of the difference survey methods (visual and digital aerial) across the data collection period. This is a major concern for Natural England and is set out in full in Appendix 12 of our Deadline 4 [REP4-087]. If it is assumed, as the Applicant asserts, that the distribution map pre- and post-construction have accurate relative proportions, the different survey platforms may not be an issue. However, it significantly undermines the outputs of the modelling if there are differences in the ability to accurately record spatial variation in relative proportions due to the survey platform. One of the issues highlighted when APEM (2010) compared results obtained from visual and digital aerial surveys of the same areas conducted immediately after one another was that when considering red-throated divers alone, or all birds, the tendency for visual surveys to underestimate densities in comparison with digital aerial methods became more pronounced where digital imagery had recorded more birds. This is probably due to the ability to enumerate large numbers of birds post survey using the digital method, a procedure which is not possible for visual surveys. The assumption being made by the Applicant is that the relative abundance of birds in visual aerial surveys scale linearly with the relative abundance of birds in digital surveys (i.e. the year effect is a linear fixed effect in the model), but it is highly possible that the effect of survey platform is non-linear, as per findings in APEM (2010). Therefore, it is difficult to rule out the possibility that for the pre-construction period, largely covered by the visual aerial surveys, the highest densities could have been disproportionately under recorded, impacting the relative spatial distribution.	While the Applicants acknowledge these points, NE's position does not take into consideration the remarkable similarity in distribution and density reported in O'Brien et al. (2012) which used visual aerial data (top figure), and that presented in the most recent surveys (Irwin et al. 2019) which used digital surveys (lower figure). 

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		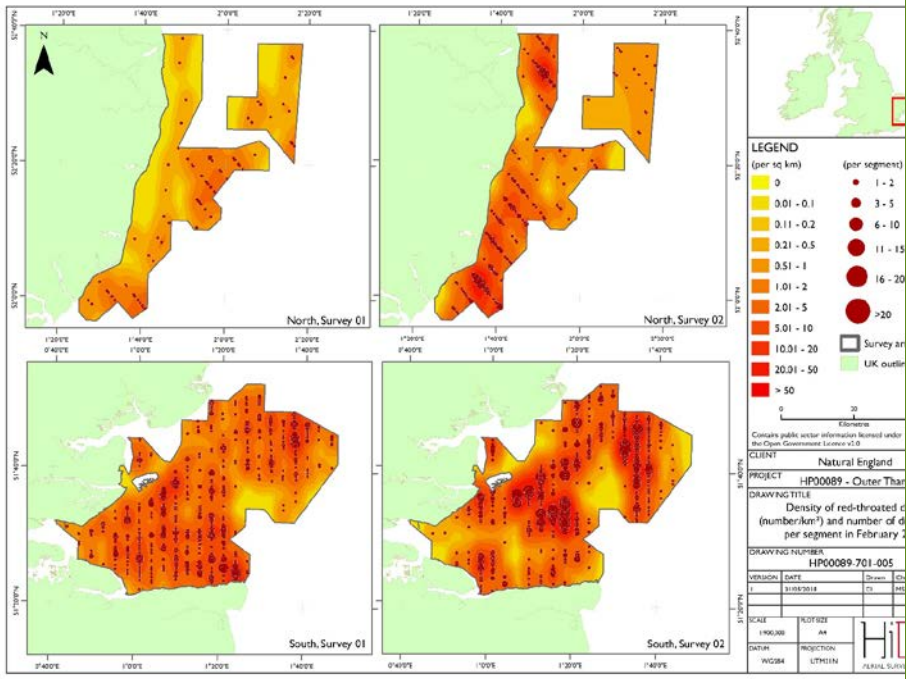
		There is no indication that peak densities have been missed or flattened by the use of visual methods as implied by NE. Therefore, the Applicant does not consider there to be any indication that the effect NE suggest has actually influenced the results obtained.
10	It is the Applicant's view that this not an issue because: *"…. while the current model treats the survey data as a reliable source, at the same time the modelling allows for fluctuations over time, so the spatial predictions do not suffer as a result of changes in methodology,*	This request appears to have misunderstood the methods used. The analysis was conducted using relative densities and the outputs were therefore normalised to obtain abundance estimates in the expected range of the current population size (20,000).

Ref	NE Comment	Applicants' Comments
	although the absolute numbers (of individuals) generated by the model should be treated with caution. For this reason, the model predictions were normalised to ensure the comparisons of the model predictions with and without the windfarms were robust." Natural England continues to have outstanding concerns, however, because the process undertaken to normalise and then compare the model outputs may be sensitive to the population size used and therefore skewed. Therefore, we advise that a sensitivity check is done by also using a population size of 10,000 individuals to check that the predicted percentage decrease is not sensitive to the assumed population size.	By normalising the outputs, the sum of the predictions across all locations is effectively scaled to sum to 1 and is then multiplied by the predicted population size (in this case an estimate of 20,000). Since the outputs are subsequently derived as comparisons of with and without windfarm predictions, these results are completely unrelated to the size of population used with respect to displacement distances. The number of individuals predicted to be present within each sub-area of the analysis window will of course change, but this will be in proportion at all locations. Therefore, no further insights will be gained from using an alternative population size as suggested.
11 & 12	3) Counterfactual approach and potential pseudo-replication The Applicant has endeavoured to address some of Natural England's concerns regarding the counterfactual approach and the potential for pseudo-replication as set out in [REP4-087], but unfortunately these remain outstanding issues. Natural England's view continues to be that the counterfactual comparison is producing lower relative changes in abundance when compared to other studies. In all likelihood this is due to the distance to windfarm relationship (Figure 4 Appendix 1) being weak when compared to other parameters. It is therefore expected that by removing the weak relationship, only a weak relative change in abundance would be detected. The Applicant states that they have considered this matter further by reviewing the partial plots of the time specific spatial layers (Figure 4 in Appendix 1) and found no similarity between the fitted spatial effects and the location of windfarms, and therefore assert that pseudo-replication is not an issue. However, the results of this review have not been shown in the report and therefore we are unable to agree with the Applicant's	The Applicants note that NE has referred to the windfarm effect as a 'weak' one when compared with those estimated for the other covariates, and would agree that this is the case, with bathymetry and distance to coast having a much greater influence on the red-throated diver distribution than windfarms. This is to be expected for several reasons, not least the fact that these variables are present throughout the study area, while the windfarm effect is necessarily much more localised. Furthermore, if a weak predictor of the species distribution (windfarms) is removed then the differences will be comparatively small. None of this is surprising. Moreover, it all supports the Applicants' position that the effect of windfarms on this species is not as great as NE propose. The Applicants would like to clarify that the review of the partial plots for the spatial smoother was conducted visually and was not presented. The Applicants will provide a response to this point at Deadline 8 The Applicants will provide a response to the point on collinearity of the covariates at Deadline 8.

Ref	NE Comment	Applicants' Comments
	position. Furthermore, we would have expected to see a check of collinearity of the covariates, and reporting of that process, in order to get a better understanding of the appropriateness of the variables. Provision of this information would allow the robustness of the Applicant's modelling to be better assessed, and should be submitted into the Examination.	
13	4) Limitations of the Modelling Approach Natural England has commented, on several occasions, that the results showing only ~33% of birds being displaced from the windfarms is much lower than other studies. This is related to the fact that other studies use methods like MRSea or Bayesian point process models, both of which have more sophisticated methods of dealing with the spatial structure in the data. For example, Bayesian point process models have a similar spatial component as an intrinsic stochastic process, while a Generalised Additive Modelling (GAMs) approach, as used by the Applicant, incorporates the spatial structure as a deterministic smooth function. Paradinas et al. (2017) outlines more explicitly why a stochastic approach is better for quantifying spatial relationships. A more sophisticated approach for capturing the spatial structure in the predictions might be more appropriate.	The Applicants will provide a response to this point at Deadline 8
14	In paragraph 13 of the Applicant's report it states that their modelling is similar to that used in the studies in the German Bight. However, this statement is not true. The only similarities are that the data were collected by aerial surveys and some of the same environmental parameters are included in the modelling. However, the GAM approach used by the Applicant and Bayesian methods used in the German Bight study are very different. It is possible that the spatial smoother that the Applicant has used is not as sophisticated as the one applied with	The Applicants will provide a response to this point at Deadline 8

Ref	NE Comment	Applicants' Comments
	MRSea by London Array (APEM 2020), or with Bayesian point process models used in the German Bight (Vilela et al, 2020), and so the predictions are being driven almost entirely by bathymetry and distance to coast. It seems entirely possible that GAMs are over-generalizing the relationship compared to other methods that were used in other studies and as such, they under-estimating the percentage decline in RTD abundance. Natural England notes that the only way to test that would be to apply the same Bayesian point process models as Vilela et al. (2020).	
15	The Applicant acknowledges that it is possible that if there are indirect effects of the windfarms on red-throated diver distributions which do not radiate symmetrically from the wind farms, these would not be captured by the structure of the distance-to-wind-farm layer and may instead be incorporated into the spatial term. Natural England notes that the same possibility must therefore also exist when considering direct effects of windfarms on the birds which likewise do not necessarily radiate symmetrically from them. This introduces a further source of uncertainty regarding the modelled outputs which a more sophisticated modelling approach might have addressed. This emphasises the need for validation of the model's outputs (see below).	The Applicants will provide a response to this point at Deadline 8
16 & 17	5) Validation of model predictions It is disappointing that the Applicant has again not provided the necessary validation of the model outputs through comparisons of the model predictions with survey results recorded in and around windfarms, and through formal cross-validation, as advised by Natural England at deadline 4 [REP4-087]. We advise that cross-validation is defined as a method of evaluating and comparing learning algorithms by splitting data into 'training' and	The Applicants will provide a response to this point at Deadline 8

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	'validation' datasets and is commonly applied in spatial modelling exercises. It can be used for model selection, but for it to be applied appropriately, the cross-validation 'folds' need to be independent. In this instance the Applicant has separated cross-validation and independent validation when they are the same procedure, which NE advises is inappropriate (Refaeilzadeh et al. 2009; Arlot and Celisse 2010).	
18	Natural England disagrees with the Applicant that by using their chosen statistical software, which they assert replaces impractical methods with considerably more expedient ones such as maximum likelihood (in the case of model fitting) and penalised likelihood criteria such as the Akaike Information Criterion (AIC) (for model selection), our concerns are addressed. Our concerns remain outstanding. We advise that the cross-validation methods have not been replaced and are far from impractical, particularly with new R packages being rapidly developed. For example, in Allen and Kim (2020) a spatial blocking system is used for cross validation. Another recent example from Clairbaux et al. (2020) demonstrates cross validation for a large spatial data set using 80/20 data splits. The spatial blocking technique would be particularly relevant here as it could demonstrate which areas of spatial distribution are being predicted better than others, and clarify the performance of the model and therefore the weight that can be given to its outputs.	The Applicants will provide a response to this point at Deadline 8
19	We note that the Applicant is correct in a broad sense that there is a level of subjectivity in assessing what is a 'good' or 'bad' model, as it depends on the data. However, a blocked cross-validation could display data relatively and spatially and would allow for an assessment of the spatial areas which have the most relatively robust predictions. We recommend that the Applicant considers the use of a blocked cross-validation to increase the level of confidence in the model.	The Applicants will provide a response to this point at Deadline 8

Ref	NE Comment	Applicants' Comments
20 & 21	We note that the Applicant is of the view that for the current models and size of dataset the time-scale for cross validation analysis could be in the order of years. However, we request that further clarity is provided on what is meant by this e.g. does the Applicant mean it would take years to analyse or more years of data to perform? Arguably neither of those would be true, as cross-validation is a well-documented procedure with packages available in R to carry this out. Regarding data quantity, it is true that temporally there is a limited data set available; however, spatially and numerically there are sufficient data to generate a model, thus it would be possible to do a cross-validation assessment, even with the caveat that temporally there are limitations. **Therefore, for the reasons set out above we continue to advise that some form of validation be carried out by the Applicant in order to demonstrate that the modelling is robust and suitable for use in assessing displacement impacts.**	The Applicants will provide a response to this point at Deadline 8
22	6) Model assumptions and model selection Whilst the Applicant's view is that there can be confidence in the selected best fit model, which is defined by the use of penalised AIC, which is appropriate for GAMs; Natural England notes that no model assumptions have been provided to ensure that GAMs have been applied appropriately. For example, this could have involved plotting the standardized residuals against fitted values to examine issues with mean-variance, or checking the residuals for violation of independence using correlograms/variograms. The output from the GAM check in R would also help to ensure that the degrees of freedom chosen by the algorithm were appropriate as well.	The Applicants will provide a response to this point at Deadline 8

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23	The Applicants also do not present any sort of check of correlation between variables by way of the variable inflation factor or similar assessments. This relates to the counterfactuals as well in that an assessment of cross-correlation between variables could help identify if the signals are being confounded. These matters require further consideration in order to demonstrate the model assumptions and selection are robust.	The Applicants will provide a response to this point at Deadline 8
24, 25 & 26	7) Results We note that Table 1 & 2 legends state modelled abundance and densities, but only abundance is shown. We welcome that Table 5 has been added to include the percentage predicted to be displaced in each 1km buffer when calculated as a straight-line relationship (from 100% at 0km to 0% at 12km). We note that the displacement within the East Anglia ONE North buffers from 2km to 8km estimated using the spatial models provided by the Applicant equated to a total 34 individuals, and that using the NE advised outputs, across the 2km to 12km buffers, the estimate is of 127 displaced individuals. However, as stated in REP1-172 and REP4-087 the mortality rate as a result of any displacement is not the main concern. To reiterate NE's position, our primary concern in this case is maintaining the ability of supporting habitat within the SPA to continue to support the same density and distribution of RTD following the construction of EA1N.	The table was labelled in error and should not have included densities. The Applicants welcome NE's repeated statement that they do not consider there to be population consequence for the predicted displacement, on which the Applicants agree. The Applicants disagree that any predicted redistribution of birds within the SPA constitutes an AEoI, and consider that the size of population effect is a material factor. It is on this basis that the Applicants continue to consider there to be no risk of an AEoI either for the projects alone or in-combination with other windfarms in the vicinity of the SPA.
27	8) Implications We have previously commented on the implications of displacement in relation to the need to consider the full suite of Conservation Objectives	The Applicants disagree with NE's interpretation of the conservation objectives, and note that as clarified within ***Applicants' Response to Natural England's Legal Submissions Concerning Displacement of Red-Throated Divers*** (REP6-020), contrary to what is said by Natural

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	on pages 10 to 12 of [REP4-087]. Even when using the Applicant's modelling approach, which we do not agree with, more than 1% of the total area of the SPA is subject to displacement effects. Natural England's advice is that a reduction of 1% or more of the supporting habitat is an adverse effect on the integrity on the Outer Thames Estuary SPA from EA1N alone.	England, there will not be any habitat "loss" within the Outer Thames Estuary SPA as a result of the Project. This is a disturbance case, not a "habitat loss" case. There will not be a reduction of 1% or more of the supporting habitat. Note that using the Applicant's model the total effective area of the SPA estimated to be subject to displacement for East Anglia ONE North is between 0.4 and 0.5% (see ***Table 9*** of REP6-019).

3 Applicants' Comments on NE Cover Letter [REP6-112] and Appendix E3b [REP6-114] – NE's Comments on Applicant's Comments on NE Deadline 3 Submission (AONB) [REP5-021]

Ref	NE Comment	Applicants' Comments
Comments from NE Cover Letter Regarding Sizewell C Cumulative Seascape Assessment		
001	Page 2: …There is one exception to the above which could give the Applicant scope to meaningfully update their cumulative effect assessment. This is in relation to new works and structures on the beach at Sizewell. Sizewell C may apply to increase the size of a jetty, and to use an overhead conveyor belt to take material from that jetty to the main power station construction site. The Applicant could use the worst case scenario of the increased jetty (given that the size specifications of the largest jetty option are now known) to assess how these changes would interact with the beach landing construction site and works for the cable route. That would not increase the significance of the cumulative effects overall, but could show that the significant effect is now potentially further amplified at the beach and foreshore. Given the Norfolk Vanguard decision, it would be prudent for the Applicant to provide as comprehensive a cumulative impact assessment as possible for the consideration of the Examining Authority.	The Applicant notes that NE recognise that the worst-case scenario of the increased jetty would not increase the significance of the cumulative effects overall, over and above those assessed in the ES Chapter 28 (APP-077) and Chapter 29 (APP-08). The Applicant will provide at Deadline 8, a further narrative consideration of the cumulative effects of the Sizewell C material changes to consider how these changes would interact with the beach landing construction site and works for the cable route.
Summary (Appendix E3b)		
002	As set out in our Deadline 6 Appendix E4 document, our advice on the significance of the impacts remain unchanged. However, included within this Appendix is our final technical advice on the document submitted by	Noted

Ref	NE Comment	Applicants' Comments
	the Applicant at Deadline 5 [REP5-021] to provide clarity on particular points and to help the ExA in their determinations. Natural England would also like to mention that Deadline 6 Appendix K5 outlines Natural England's advice on seascape and landscape visual amenity (SLVIA) impacts discussed under the agenda items at the Issue Specific Hearing (ISH) 8 held on the 18th February 2021.	
1) Detailed comments on the document Section 3: Response to Key Statements		
003	1. Because this section relates to the interpretation of planning policy Natural England offers no comments. As we stated in our response to the Applicant's Deadline 3 submission (Appendix E3 at paragraphs 4 and 5 [REP3-120]) Natural England does not offer interpretations of national planning policy as this is a matter for the regulatory decision makers.	Noted
2) Section 4:SLVIA Significant / Magnitude of effect		
004	2. At paragraph 32 Natural England notes the Applicant's clarification supporting the findings of the Seascape and Landscape Visual Impact Assessment (SLVIA) and welcomes this. We also note the: • additional commentary on a need to place the conclusions of the assessment 'into an appropriate context' for consideration in the planning balance and in relation to the relevant policy texts: and • The statement to the effect that significant effects do not carry the same weight in the planning balance. Natural England provides no comment because these are matters for the ExA to deliberate and decide.	Noted
i) Magnitude of effect – GLVIA 3		

Ref	NE Comment	Applicants' Comments
005	3. Guidelines for Landscape and Visual Impact Assessment (GLVIA3) states that the magnitude of effect is assessed by combining judgements of: • The size and scale of the effect – (for EA2; the occupation of approximately 200km^2 of seascape) • The geographical extent of the effect – (for EA2; a length in excess of 40km of the Suffolk coastline, the majority of which is within the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (SCHAONB) and Suffolk Heritage Coast). • The duration of the effect and its reversibility – (for EA2 at least 25 years). Figure 3.5 on p.39 of GLVIA3 illustrates where the assessment of magnitude of change fits into the overall SLVIA process.	No further comment
006	4. In Appendix 28.4 of the Environmental Statement the Applicant provides details of the assessed effect on landscape receptors (defined by the Suffolk County Council LCA) whilst Appendix 28.5 does the same for visual receptors. Special qualities are documented in Chapter 28 28.7.3.2.3.6 on pages 70 to 77. In all of these documents frequent reference is made to the magnitude of effect being medium. (As noted by the Applicant in certain instances we have used 'moderate' instead of 'medium' and we apologise for any confusion caused by this.) In all these instances the significance of effect judgement is classified as either 'significant' or 'not significant'. As noted by the Applicant at paragraph 33, and again in paragraph 34, no statement on the 'degree of [significant] effect' has been made. **An effect therefore is either 'significant' or 'not significant'. This is the basis upon which we have provided our advice.**	The Applicants would refer to paragraph 53 of ES Appendix 29.2 (APP-566): '*The objective of the assessment is to predict the likely significant effects … on the landscape and visual resource. In accordance with the EIA Regulations, the landscape and visual effects are assessed to be either significant or not significant. The LVIA does not define intermediate levels of significance as the EIA Regulations do not provide for these'.* As stated in GLVIA3, *'the regulations require that a judgement is made about whether or not each effect is significant'*, and *'there are no hard and fast rules about what effects should be deemed significant, but LVIAs should always distinguish clearly between what are considered to be the significant and non-significant effects'*. GLVIA3 also notes *that 'it is not essential to establish a series of thresholds for different levels of significance…. provided it is made clear whether or not they are considered significant'.*

Ref	NE Comment	Applicants' Comments
		The Applicants SLVIA in ***ES Chapter 28*** (APP-077) has clearly distinguished significant and non-significant effects. It is also the case however, that reference can usefully be made to magnitude of change for further understanding of the impact assessments, as magnitude of change provides an assessment of the size or scale of landscape and visual effects, on a scale of high to negligible, noting that the magnitude of change resulting from East Anglia TWO windfarm site on the special qualities of the AONB is often assessed as medium or medium-low in the SLVIA, and that this is a key criteria to inform judgements about overall significance of effects.
007	5. At paragraph 35 the Applicant references the second bullet point of GLIVA3 paragraph 3.35. This paragraph deals with the need for clear and accessible explanations listing 3 potential pitfalls. For completeness here is the 2nd bullet point of paragraph 3.35 in full; • 'Failure to distinguish between the significant effects that are likely to influence the eventual decision and those of lesser concern'.	No further comment
008	6. Natural England has always understood the phrase 'those of lesser concern' to refer to non-significant effects (which can, mostly, be discounted) rather than significant effects which need to be accounted for. Natural England also considers GLIVA3 to be unhelpful on this subject because at paragraph 3.34 the final sentence reads; *'It should also be made clear that effects not considered to be significant will not be completely disregarded'.*	No further comment
009	7. It is because of the ambiguity of GLVIA3, and its potential to create confusion, that Natural England reviews the statements and conclusions of SLIVAs and LIVAs at face value. Therefore, where an effect is	The Applicant accepts that where an effect is assessed as 'significant' in the SLVIA, it is considered to be significant in EIA terms, however as noted above, the Applicant considers that the magnitude of change resulting from

Ref	NE Comment	Applicants' Comments
	assessed as 'significant' we consider it to be significant in EIA terms. Natural England assumes that such an approach is accepted by the Applicant (at paragraph 34) as no statements on the 'degree of [significant] effect' has been made in the SLVIA. Therefore, an effect is either significant or not significant.	East Anglia TWO windfarm site on the special qualities of the AONB, which is assessed as either medium or medium-low, is a key criteria to inform judgements about overall significance of effects. NE have recognised that where significant effects to special qualities occur, i.e. at the coast in this these particular geographic areas of the AONB in the perception of offshore panoramic views, significance is finely balanced near the threshold of significance. The magnitude of change is of medium or medium-low magnitude on special qualities (and therefore either just 'significant' or just 'not significant') and in no cases are the impacts of higher levels of magnitude.
010	8. In addition the 3rd bullet point of 3.35 of GLIVA3 highlights another potential pitfall; • 'Losing sight of the most glaringly obvious significant effects because of the complexity of the assessment'. This is something which Natural England seeks to avoid when setting out our advice.	No further comment
ii) Magnitude of Visibility		
011	9. At paragraphs 39 to 46 the Applicant returns to the subject of visibility. Natural England has provided advice on this matter[1] [REP1-157, REP3-120 and Appendix E4 at Deadline 6] and has nothing further to add on this subject.	Noted
3) Section 5: Geographical Extent of Significant Effects		

[1] Relevant Representation [RR-059] - 'Note about the visible height of off-shore wind turbines' and at 2.8 (January 2020) Applicant.

Ref	NE Comment	Applicants' Comments
012	10. At paragraph 49, the Applicant states that Natural England has 'misunderstood the point'. However, as the extracts from the Navitus ExA Report demonstrate Natural England has not misunderstood the point (as provided in REP3-120).	No further comment
013	11. The statutory purpose of the SCHAONB extends to all parts of the designation i.e. all of its constituent parts (including the Reactor Hall of Sizewell B power station) and not simply to the designation 'as a whole' as maintained by the Applicant. The logical conclusion of the Applicant's assertion is that unless a development scheme effects the entirety of the designation, the 'whole', then the statutory purpose of the designation cannot be compromised. Natural England cannot envisage a scheme which could affect the whole designated area, and all of the special qualities, of the SCHAONB; an area which extends to 403km^2.	The Applicant notes that the effect of the East Anglia TWO windfarm site upon the Natural Beauty of the AONB is addressed, assessed and reported. It is concluded that although for East Anglia TWO there may be some residual significant effects on identified special qualities relating to some visual attributes of the AONB and its special quality indicators (relating to expansive views offshore experienced from several separate stretches of narrow shingle coast and cliff edges) the purposes of the designation are not compromised nor is the integrity of the AONB and its fundamental character. The Applicant considers that for these reasons, the harm to the AONB is limited, the purposes of designation of the AONB as a whole will not be compromised as required by the test in paragraph 5.9.12 of NPS EN-1, and weight given to the identified harms should reflect the limited consequences of the harm to the purposes of designating the AONB.
014	12. Having re-read the Applicant's submissions on this point we offer the following observation. We think that in applying the GLVIA3 methodology the Applicant has treated the SCHAONB a single 'landscape unit' (which extends to 403km2; so bigger than many National Character Areas) and treated the special qualities of the SCHAONB as characteristics of this landscape unit. In doing so they have misunderstood the importance of the special quality descriptions and how they articulate the natural beauty of the SCHAONB. The statements set out what makes the area special, worthy of national designation and protection in national planning policy. Although such	The Applicant can confirm that it is has not treated the AONB as a single landscape unit, as demonstrated by consideration and assessment of the numerous different landscape character types (LCTs) within the AONB in its assessment. The Applicant has understood, articulated and assessed the effects of the East Anglia TWO windfarm site on the special qualities and natural beauty of the SCHAONB, considering both the magnitude of change arising and describing the geographic extent of such effects, with reference to relevant LCTs and how special qualities are experienced in different geographic areas of the AONB.

Ref	NE Comment	Applicants' Comments
	statements have no legal status, they are helpful in framing assessments and judgements about the significance of a development proposal on the statutory purpose of a designated landscape. This is why Natural England refer to these statements in our advice. The Applicant has failed therefore to understand how the statutory purpose of the SCHAONB applies the whole of the AONB and all of its constituent parts.	Having considered the extent to which the effects have been minimized with regard to the statutory purpose of the AONB, determined the extent of the residual significant effects that would remain, and understood to what extent these residual significant effects would affect the special qualities of the AONB, whilst noting that significant effects are not automatically unacceptable, the Applicant's ***Effects with Regard to the Statutory Purposes of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty and Accordance with NPS Policy*** (REP2-008) considered further whether the proposals would compromise the purposes of designation. In considering the question of whether proposals compromise the purpose of the designation, a distinction is drawn between the identification of any significant effects upon the AONB and its Special Qualities and a second level of consideration relating to whether such effects compromise the purpose of designation. It would be wrong to automatically judge the significant effects from an EIA perspective as compromising the designation and a further level of judgement must be made. If the test enshrined in the EN-1 Policy had intended that there should be no significant effects on the Special Qualities, it would have clearly and simply stated this and set a threshold on this basis. It does not. The intention of policy for AONB's is to protect the objectives of the designation (i.e. scenic beauty) by ensuring that the overall integrity of the area will not be compromised. In this case, due to a number of factors set out in full in the SLVIA in ***ES Chapter 28*** (APP-077) and the ***Effects with Regard to the Statutory Purposes of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty and Accordance with NPS Policy*** (REP2-008). These include, in summary:
015	13. The Applicant's assessment has concluded significant adverse effects will only occur on one geographic part of the SCHANOB and 5 of the 18 special qualities (Natural England judge this to be 11 of the 18). If the area encompassed by the SCHAONB was not a designated landscape i.e. just a 'landscape unit' then a judgement of no of overall effect may have been justified, but this is not appropriate for an AONB. As we have set out at length, the statutory purpose of the SCHAONB applies equally to all of the designation and to all of its parts. This is why Natural England has concluded that the EA2 scheme will result in a significant adverse effect on the statutory purpose of the SCHAONB even if the 'the whole of the AONB' will not be directly affected.	
016	14. It is this misunderstanding by the Applicant that we believe explains the continued reference by the Applicant to 'no overall effect' and 'as whole' as a means of characterising the nature of the adverse significant effects. Our advice, as the national landscape agency and designating authority for the AONB, is that these references are not relevant and should be discounted.	

Ref	NE Comment	Applicants' Comments
		• That effects occur as a result of East Anglia TWO windfarm site at distances of at least 32.6km outside the AONB, on specific visual special quality indicators present only at the coastal edge; • The geographic extent over which these qualities and resulting effects are experienced; • Their medium magnitude and limited frequency (due to visibility); • The context in which effects occur; • The retained visual qualities of long-distance views out to sea and avoidance of any physical harm to the landscape fabric of the AONB; • That harm to the AONB is limited; and • That neither the Natural Beauty nor the purposes of designation of the AONB will be compromised, nor will its integrity be undermined as required by the test in paragraph 5.9.12 of NPS EN-1.
017	15. Paragraphs 50 – 59: It is a point of disagreement between the Applicant and Natural England as to the extent of the geographical extent of this effect. Natural England has provided extensive advice about the geographical extent of the effects on the special qualities, landscape receptors and visual receptors intrinsic to and reliant upon the natural beauty of the SCHAONB and its seascape setting. Our advice on these matters has not changed. Therefore, Natural England offers no further comment on these matters and suggests that differences on the subject are simply a matter of differing professional judgements. Because of this, Natural England does not agree with the statement in paragraph 50 'This is not the case' which seeks to cast the Applicant's	No further comment

Ref	NE Comment	Applicants' Comments
	judgement as a matter of fact, definitive and not open to challenge, which it is not the case.	
018	16. We note that the Applicant continues to refer to the route of the Suffolk Coastal Path. However, on the 29th January 2020 Natural England published it proposals for the section of the English Coastal Path between Aldeburgh and Hopton-on-Sea. The English Coastal Path (ECP) is designated as a National Trail. See below for details; https://www.gov.uk/government/publications/england-coast-path-from-aldeburgh-to- hopton-on-sea-comment-on-proposals	Noted
	17. As the map contained within the link clearly shows (at point 4) the proposed route of the ECP may not in all instances follow the route of the Suffolk Coastal Path (SCP). Where the alignment of the new route is closer to the shoreline, extensive and uninterrupted views out to sea are possible. Should EA2 be built, it will be readily apparent in these views. The continuous experience of the significant adverse effects on walkers using ECP will to be greater than for users of the inland route of the SCP.	The Applicant notes that the England Coast Path is being developed for this section of coast by NE and will adopt the Suffolk Coast Path for some of its length, but in places provide new sections. Some of these new sections focus more specifically on the coast and on enjoyment of sea views, while other new sections detour inland around the main estuaries. It is shown in **Figure 28.22** (APP-350) of the SLVIA. At the time of the DCO application, the England Coastal Path was at Stage 2 and 3: 'Develop and Propose', with proposals being developed and proposed. The section between Bawdsey and Aldeburgh is now at Stage 4: 'Determine'. NE have submitted reports to the Secretary of State setting out the proposals. The England Coastal Path is not yet approved, which comes at Stage 5 once the Secretary of State has approved, when NE will start work with Suffolk County Council on preparing the route for public use. Over the section between Bawdsey and Aldeburgh (at Stage 4), the England Coast Path follows a similar route to the Suffolk Coast Path

Ref	NE Comment	Applicants' Comments
		between Bawdsey and Boyton Marshes, passing Shingle Street and the north side of the River Ore. The main difference in the route of the England Coastal Path is that it follows a closer alignment to the edge of the Butley River extending inland, before returning to follow the northern edge of the River Ore and River Alde. The Applicant would not expect there to be additional significant effects over this 'new' stretch of the England Coastal Path, due to is location inland of Orford Ness along the River Ore. Only the northern parts along the Alde may afford views over Sudbourne Beach to the sea and beyond, with potential for visual effects over a short section, when compared to the current alignment of the SCP.
019	18. Paragraph 56 accurately articulates Natural England view. For the reasons already provided, Natural England disagrees with Applicant's statements contained in paragraph 57. The statement 'although a significant change will occur in some views on occasions, long sweeping and distant views would remain with big skies and extensive foregrounds of sea or shore' is factually correct in describing what would not change, but crucially excludes a description of what the significant change would be i.e. the introduction into those views of up to 60 or so 282m tall turbines. This statement therefore risks under-representing the adverse effects of the scheme.	No further comment
020	19. Following a review of the distance figures provided in Appendix 1 (paragraphs 110 and 111) we note that the length of the SCHAONB coastline where significant adverse effects are predicated is 27.5km. We welcome the Applicant's figure which confirms Natural England's earlier statement that the 'majority' of the 35km stretch of SCHAONB coastline within the ZTV will be adversely effected by the turbines of EA2.	No further comment

Ref	NE Comment	Applicants' Comments
4) Section 6. The Future Character of the SCHAONB		
021	20. AONB Management Plans are a material consideration for proposed development schemes determined using policies contained in the NPPF 2019. They are specifically mentioned in National Planning Practice Guidance, which states; *'Management plans for National Parks, the Broads and Areas of Outstanding Natural Beauty do not form part of the statutory development plan, but they help to set out the strategic context for development. They provide evidence of the value and special qualities of these areas, provide a basis for cross-organisational work to support the purposes of their designation and show how management activities contribute to their protection, enhancement and enjoyment. They may contain information which is relevant when preparing plan policies, or which is a material consideration when assessing planning applications.'*	Noted
022	21. Generally, AONB management plans set out the special qualities of the area in the form of descriptive statements and a set of broad objectives which seek to conserve and enhance the natural beauty of the designation. AONB management plans do not contain any local land use planning policies or aspirations which override those set out in either local development plans, national policies or primary legislation.	Noted
023	22. Equally, National Policy Statements EN-1 and EN-3 make no reference to AONB Management Plans. Therefore, in our submissions we have advised that the AONB Management Plan provides neither a justification for the granting of approval for EA2, nor does it provide any 'weight' within the decision-making process. It is, therefore, our view that it is not a material consideration.	No further comment

Ref	NE Comment	Applicants' Comments
024	23. Natural England used the word 'speculative' to reflect the fact that the future character of the AONB coastline is not preordained, either by EN-1 and EN-3 or by descriptive statements made in the Suffolk Coast and Heaths AONB Management 2018 – 2023. Although the term 'speculative' was perhaps a poor choice of adjective, 'hypothetical' would have been more appropriate. Our intent was to demonstrate that the wording in the SCHAONB Management Plan simply anticipates what the future character of the AONB landscape and its seascape setting might be, not a definite policy endorsed prediction of what it will be.	Noted
025	24. Should the ExA deem that the text referring to the Suffolk Energy Coast, as set out in the SCHAONB Management Plan, is a material consideration in determining the scheme then Natural England considers that other relevant policies in the NPPF 2019 are also material considerations. In particular paragraphs 170 c) and 173 as they relate to the Suffolk Heritage Coast. And as such further assessments by the Applicant of the Suffolk Heritage Coast will be required.	Noted
5) Section 7. Comparisons with other Offshore Windfarms		
026	25. Natural England maintains that the evidence and ExA reasoning from the Rampion and Navitus Wind Park examinations, which we provided in response to the Deadline 3 SPR submission (C.4, 18, 19, 20.), is relevant to consideration of the EA2 scheme.	Noted
027	26. At paragraph 65; Natural England confirms that it was our aim to assist the ExA in its task. We note that as defined within EN-1 the Navitus Wind Park scheme is not 'permitted infrastructure'. However, there are few examples of offshore wind farms in the setting of coastal designated landscapes in England where the EIA has predicted that significant adverse effects will occur. In order to assist the ExA, we	Noted

Ref	NE Comment	Applicants' Comments
	thought it helpful to draw their attention to the specific paragraphs of the Inspectors Report for the Navitus Wind Park scheme as they relate to the statutory purpose of the Dorset AONB and New Forest NP. We are not suggesting a physical like for like comparison is helpful. It is for the ExA for the EA2 scheme to decide whether or not the reasoning and conclusions of a previous ExA relating to adverse effects on the special qualities of the Dorset AONB and New Forest NP are relevant in the determination of EA2.	
028	27. Each of England's designated landscapes is unique in the way in which natural beauty is expressed. The manner in which offshore windfarms present themselves to a given coastline is also unique. It simply not possible to make physical comparisons between different designated landscape / offshore wind relationships as this would fail to take account into a multitude other characteristics[2] both physical and non-physical which combine together to create a sense of place. It would also undermine the whole notion of landscape character, the role this plays in EIA as well as the designation process by which National Parks and AONBs have been established.	No further comment
029	28. Any conclusions drawn from comparing the effect of a given offshore windfarm on a particular designated landscape and the visual amenity it affords with that of another offshore windfarm on another designated landscape would be false, misleading and therefore not a sound or safe basis for decision making.	The Applicant notes that policy in NPS EN-1 (para 5.9.19) confirms that *'It may be helpful for applicants to draw attention, in the supporting evidence to their applications, to any examples of existing permitted infrastructure they are aware of with a similar magnitude of impact on sensitive receptors. This may assist the IPC in judging the weight it should give to the assessed visual impacts of the proposed development'.*

[2] Including, but not limited to: geology and landform, vegetation cover, land use, settlement pattern, climate and visibility, recreational use and value, artistic and cultural associations and the historic environment.

<table>
<tr><th>Ref</th><th>NE Comment</th><th>Applicants' Comments</th></tr>
<tr><td>030</td><td>29. For the reason set out above, directly comparing the physical influence of the EA2 scheme with those of other offshore arrays located off the coast of other designated landscapes is unhelpful. We have already provided commentary on the nature of the relationship between the Rampion windfarm and the 1,500m of coastline of the South Downs National Park at Rottingdean. We will not be providing any further commentary on this example.</td><td>No further comment</td></tr>
<tr><td>031</td><td>30. In our advice Natural England have, and will only, make reference to the visual influence of the of the Greater Gabbard and Galloper arrays on the SCHAONB as a means of understanding the effect of the turbines of EA2. For completeness, here are the apparent height values for these arrays, noting that the EA2 turbines will appear to be taller than those of both Greater Gabbard and Galloper, <u>despite the fact that they are located further offshore.</u>
<table>
<tr><th>Windfarm</th><th>Viewing height (m) (VP 18 Orford Ness)</th><th>Turbine height Blade Tip (m)</th><th>Minimum Distance (km) (as measured from Viewpoint 18)</th><th>Apparent height of closest turbine (degrees) NE Figure</th></tr>
<tr><td>EA2</td><td>5.8</td><td>282</td><td>37.4</td><td>0.352*</td></tr>
<tr><td>Greater Gabbard</td><td>5.8</td><td>134</td><td>25.1</td><td>0.268</td></tr>
<tr><td>Galloper</td><td>5.8</td><td>180</td><td>29.3</td><td>0.300</td></tr>
<tr><td colspan="5">THE TURBINES OF EA2 WILL APPEAR TO BE TALLER THAN THE TURBINES OF GALLOPER EVEN THOUGH THEY ARE LOCATED FURTHER AWAY FROM THE COAST.</td></tr>
</table></td><td>The Applicant notes the commentary on apparent height it has provided in the Applicant's Comments on Relevant Representations - Volume 3: Technical Stakeholders (AS-036). The Applicant notes that based on the apparent height values provided in the table opposite, the turbines of the East Anglia TWO windfarm site are very similar and only marginally taller than the turbines of Galloper (by a vertical angle of 0.052°) and that this similar apparent scale can be seen in the view from Orfordness as demonstrated in the wireline in ES Figure 28.42a-e (APP-372).</td></tr>
</table>

Ref	NE Comment	Applicants' Comments
032	31. Natural England advises that this is the only physical comparison which worthy of consideration by the ExA and therefore helpful in their deliberations. We advise that all other physical comparisons will be unhelpful and misleading.	The Applicants consider that looking at visual material in context is far more useful. A one dimensional analysis has very limited value. The appreciation of "Tallness" might be influenced by other scale comparators. Hence why a desk top exercise might be unhelpful or misleading in the extreme.
033	32. We advise therefore that the Applicant's text at paragraph 66 ii) and iii) is not relevant and contradicts previous statement made by the Applicant. For completeness this text is repeated below; 'The Applicant considers that judgements on significance should be properly based on the assessment material provided in the ES which have been undertaken with best practice GLVIA3'.[3]	Comment provided below at row 034.
034	33. Therefore, it may be helpful to the ExA for the Applicant to confirm that they still support their previous statement.	The Applicant agrees that judgements on significance should be based on the assessment material provided in the ES which have been undertaken with best practice GLVIA3. The Applicant also notes that policy in NPS EN-1 (para 5.9.19) confirms that *'It may be helpful for applicants to draw attention, in the supporting evidence to their applications, to any examples of existing permitted infrastructure they are aware of with a similar magnitude of impact on sensitive receptors. This may assist the IPC in judging the weight it should give to the assessed visual impacts of the proposed development'.* The Applicants therefore consider NE's position to be extreme in seeking to limit the consideration of contextual information.
035	34. The relevance of how adverse effects on special qualities have been considered within national planning policy for other offshore wind farm applications is a matter for the EA2 ExA and regulators to decide. Our	The Applicant would note its comments at rows 015 to 017 above and its findings with regards to the statutory purpose of the SCHAONB in ***Effects with Regard to the Statutory Purposes of the Suffolk Coast and***

[3] 3 Applicant's Comment on Relevant Representations Volume 3 Technical Stakeholders p.397 (NE2.5 to 2.8). 11th June 2020.

Ref	NE Comment	Applicants' Comments
	highlighting the relevant paragraphs of the Navitus and Rampion ExA Reports is intended to support that decision-making process. Natural England continues to advise that the conclusions provided in the EIA for the EA2 scheme should be the principal basis for decisions about the acceptability of the scheme, highlighting of course where and how we disagree with the EIA's conclusions and the assessed effect on the statutory purpose of the SCHAONB.	***Heaths Area of Outstanding Natural Beauty and Accordance with NPS Policy*** (REP2-008).
036	35. At paragraph 67: Natural England disagrees with the Applicant's assertion that the Navitus Wind Park scheme is not relevant as a comparable example for the reasons and evidence supplied in our response to the Deadline 3 submission (C. 4, 18, 19, 20).	No further comment

4 Applicants' Comments on NE Appendix G4 [REP6-114] – NE comments on EA1N/EA2 Updated DCO Application

EA2 / EA1N or both?	Point	Document Section	NE Comment	Risk	Applicants' Comments
Schedule of Changes to Draft DCO					
Both	Article 2(1)	Table 1 Page 2	Natural England notes the updated definitions and has no further comment to make on them.		Noted
Both	Article 2(1)	Table 1 Page 4	Natural England notes the update to the definition of offshore preparation works and notes the amendments. We note and support MMO's concerns relating to if the UXO works should be included. However, without prejudice to this position, we would accept the updated drafting. This is repeated within the DML and Natural England's position is as above.		The Applicants welcome this position.
Both	Schedule 1, Part 3, Requirement 2(1)(a)	Table 1 Page11-12	Natural England notes the reduction in maximum turbine height to 282m and the commitment to a clearance of 24m. We appreciate these changes, however, note our outstanding concerns relating to visual and ornithological impacts remain as per our previous advice REP3-120 and REP4-088. Natural England notes that these changes have also been made within the DMLs and refers to the comment above.		The Applicants have responded to REP3-120 and REP4-088 within the ***EA2 Applicant's Comments on Natural England Deadline 3 Submissions (Area of Outstanding Natural Beauty)*** (REP5-021) and ***Applicants' Comments on Natural England's Deadline 4 Submissions*** (REP5-015) respectively and have no further comments to make.

EA2 / EA1N or both?	Point	Document Section	NE Comment	Risk	Applicants' Comments
Both	Schedule 1, Part 3, Requirement 31	Table 1 Page 22	Natural England notes that the applicant has updated the requirement to include a consultation with the statutory nature conservation body. We consider this matter resolved.		The Applicants welcome this position.
Both	Schedule 1 Part 3, Requirement 42	Table 1 Page 30	Natural England notes and welcomes this addition.		The Applicants welcome this position.
Both	Schedule 13 Part 2 Condition 16 (1) and (3)	Table 1 Page 38 and 39	Natural England notes the inclusion of wording ensuring that a micro-siting report is produced. We also note the inclusion of new timing requirements under condition 16 (3) and (4). We support the 6 and 3 month timing requirements that have been proposed.		The Applicants welcome this position.
Both	Schedule 13 Part 2 Condition 17(1) (e) (vi)	Table 1 Page 40	Natural England welcomes the update to the wording to reflect that the red-throated diver mitigation measures for vessels must be as per the best practice protocol.		The Applicants welcome this position.
Both	Schedule 13 Part 2 Condition 17 (j)	Table 1 Page 41	Natural England welcomes the condition securing the submission of the updated *Sabellaria* reef management plan six months prior to works.		The Applicants welcome this position.

EA2 / EA1N or both?	Point	Document Section	NE Comment	Risk	Applicants' Comments
Both	Schedule 13 Part 2 Condition 20(2) (d)	Table 1 Page 41	Natural England welcomes the condition securing ornithological monitoring. Note this applies to the new condition 22 (2)(e) as well.		The Applicants welcome this position.
Both	Schedule 13 Part 2 Condition 21 (3)	Table 1 Page 41-42	Natural England note the changes that have been made in line with our advice. However, we have been advised that this condition will be further updated subject to discussion with the MMO. We consider that progress is being made on this issue and that resolution is likely to be achieved after review of the next update. Please note this response is also a response to ExA question Schedule 14, Q3.		The Applicants have amended the condition wording as follows to address the MMO's comments: *If, in the opinion of the MMO in consultation with the statutory nature conservation body, the assessment shows statistically significant ~~significantly~~ differences~~t~~ in impacts to those assessed in the environmental statement or failures in mitigation, all piling activity must cease until an update to the marine mammal mitigation protocol and further monitoring requirements have been agreed.*
Both	Schedule 13 Part 2 Condition 24	Table 1 Page 43	Natural England maintains its position regarding the deployment of cable protection and scour protection in new areas over the lifetime of the project. Please see the cable protection paper and our response at Deadline 4 REP4-093. However, without prejudice to our position, if the Secretary of States decides to include the deployment of cable and scour protection over the operational lifetime of the project, Natural England supports the wording proposed by the MMO to ensure consultation and approval of all new areas.		The Applicants have engaged with the MMO on a suitable condition which has been included in the draft DCO submitted at Deadline 7.

EA2 / EA1N or both?	Point	Document Section	NE Comment	Risk	Applicants' Comments
Both	Schedule 13 Part 2 Condition	Table 1 Page 43-44	Natural England notes and supports the inclusion of a condition requiring co-operation between EA1N and EA2.		The Applicants welcome this position.
Both	Schedule 14	Table 1 page 44-55	Natural England notes that all issues above are repeated in the Transmission DML and notes that our response to those issues is already given above.		Noted. See the Applicants responses above.
Natural England's actions from ISH7					
Both	Action 9		Natural England notes that an updated SIP will be submitted at Deadline 6 and will provide comments on this at Deadline 7.		The Applicants have submitted an updated SIP at Deadline 7 (document reference 8.17)
Both	Action 12		As noted in our response to the updated DCO above, Natural England are content with the updated timelines in the UXO conditions.		The Applicants welcome this position and consider that NE intended this risk level to be green.
Both	Action 13		As noted above, Natural England is broadly content. However, is engaged in a process with MMO and the applicant which may result in changes to the wording.		The Applicants have committed to ensuring that one of the first four piles of any piled foundation type will be within an area anticipated to result in the greatest underwater noise emissions which is reflected in the IPMP submitted at Deadline 6 (REP6-016) which the Applicants consider address outstanding concerns relating to this.

EA2 / EA1N or both?	Point	Document Section	NE Comment	Risk	Applicants' Comments
Both	Action 17		It is noted that these issues relate to issues that the MMO raised. We support the MMO position on these matters.		The Applicants have responded to each of the specific matters raised by NE in their Deadline 6 Risks and Issues Log at Point 17 of Table 2 in the ***Applicants' Responses to Hearings Action Points*** (REP6-049).