

East Anglia THREE
**Information for the Habitats
Regulations**
Appendix 5: Ornithology Integrity
Matrices

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Author – Royal HaskoningDHV and MacArthur Green
East Anglia THREE Limited
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1 INTEGRITY MATRICES

1.1 Stage 2 Integrity Matrices

1. Following screening of potential impacts on European designated sites (*Appendix 1*) the following features of European Sites were assessed to determine if there was a risk of Adverse Effects on the Integrity (AEOI) of their qualifying features in the Information for Habitats Regulations Report.
 - Alde-Ore Estuary SPA and Ramsar
 - Deben Estuary SPA and Ramsar
 - Flamborough & Filey Coast pSPA
 - Outer Thames Estuary SPA
2. A summary of the evidence presented in the determination of the risk of AEOI on their qualifying features is detailed within the footnotes to the integrity matrices below.
 - Y – AEOI **cannot** be excluded
 - N - AEOI **can** be excluded
 - C = construction
 - O = operation
 - D = decommissioning
3. Where effects are not applicable to a particular feature they are greyed out.

Name of European Site: Alde-Ore Estuary SPA and Ramsar									
Distance to East Anglia THREE Site 109km									
Site Features	Adverse Effect on Integrity due to proposed East Anglia THREE project								
	Collision mortality (in-combination)			Displacement/Disturbance			Barrier Effect		
	C	O	D	C	O	D	C	O	D
Breeding lesser black-backed gulls		N (a)							
<p>a) Band model predictions of collision mortality suggest 1.1 collisions per year by adult lesser black-backed gulls from the Alde-Ore population. This represents an increase of 0.1% on natural mortality which is below detection limits so is considered negligible. There will be no adverse effect on the integrity of the Alde-Ore Estuary SPA as a result of lesser black-backed gull collisions at the proposed East Anglia THREE project alone. In-combination assessment suggests mortality of 58 birds attributable to the Alde-Ore SPA population of lesser black-backed gulls compared with estimated natural mortality of about 940 birds per year. Thus, the additional in-combination mortality would increase mortality rate from 14.10% to 14.97%. Comments made by the Secretary of State in relation to the East Anglia ONE assessment are relevant here. Despite the much lower avoidance rate applied at the time of that assessment (98%) and therefore the much larger numbers estimated to be killed by collision, it was concluded by the Secretary of State in relation to East Anglia ONE (DECC 2014), that the mortality from offshore wind farms is insignificant compared to other factors affecting the population of the lesser black-backed gull, and with planned improvements to the SPA, immigration from other colonies is likely, and would boost numbers, should favourable breeding conditions be created. Since mortality at the proposed East Anglia THREE project is estimated to be only slightly greater than 1 individual, even if it is concluded that there will be an adverse effect on the integrity of the SPA due to in-combination collision mortality it is clear that the proposed East Anglia THREE project will not be contributing significantly to this.</p>									

Name of European Site: Deben Estuary SPA and Ramsar									
Distance to East Anglia THREE Site 124km (a)									
Site Features	Adverse Effect on Integrity due to proposed East Anglia THREE project								
	Collision mortality			Displacement/Disturbance			Barrier Effect		
	C	O	D	C	O	D	C	O	D
Nonbreeding dark-bellied brent goose				N (b)					
<p>a) Although the East Anglia THREE site is 124km from Deben Estuary SPA, the onshore cable and associated structures runs through Deben Estuary SPA.</p> <p>b) With the proposed mitigation measures in place and managed levels of disturbance during construction works, it can be expected that brent goose numbers will continue to remain at a similar level, subject to natural change.</p>									

Name of European Site: Flamborough & Filey Coast pSPA									
Distance to East Anglia THREE Site 257km									
Site Features	Adverse Effect on Integrity due to proposed East Anglia THREE project								
	Collision mortality (in-combination)			Displacement/Disturbance			Barrier Effect		
	C	O	D	C	O	D	C	O	D
Breeding kittiwake		N (a)							
Breeding gannet		N (b)							
<p>a) Collision mortality of kittiwakes at East Anglia THREE site (based on Band Option 1 and an avoidance rate of 0.989) was estimated at 49 birds in spring, 8 in summer and 90 in autumn, giving an annual total of 147 birds. Based on a precautionary assessment, numbers apportioned to the Flamborough & Filey Coast pSPA population were 1.34 during the migration-free breeding season (May-Jul), 4.86 in autumn migration (Aug-Dec), and 3.53 in spring migration (Jan-Apr). These 9.73 birds from a population of 141,000 represent a negligible addition to natural mortality. Kittiwake collision mortality due to East Anglia THREE alone will have no adverse effect on the integrity of this SPA. The In-combination assessment suggests a collision mortality of 372 birds from Flamborough & Filey Coast pSPA population per year at East Anglia THREE of all age classes and 197 of these being adults. This is well below the PBR threshold of 512 set by Natural England for this population with a precautionary recovery factor (f) of 0.1. It is, therefore, reasonable to assess that there will be no adverse effect on the integrity of Flamborough and Filey Coast pSPA as a result of kittiwake collisions at the proposed East Anglia THREE project in-combination with other projects, and this view is further supported by PVA modelling.</p> <p>b) Collision mortality of gannets at the East Anglia THREE site (based on Band Option 1 and an avoidance rate of 0.989) was estimated at 4 birds in spring, 2 in summer, 11 in autumn, giving an annual total of 17 birds (East Anglia THREE Environment Statement Chapter 13 Offshore Ornithology). Slightly higher numbers would apply if using Band Option 2 (16 birds in spring, 9 birds in summer, 55 birds in autumn). Based on a precautionary apportioning of mortality to the Flamborough and Filey Coast pSPA gannet population, mortality estimates are 2 during the migration-free breeding season (Apr-Aug), 0.46 during autumn migration (Sep-Nov) and 0.22 during spring migration (Dec-Mar). These sum to an annual total of 2.68 individuals, from a population of approximately 40,000 birds. If the higher collision estimates obtained using Band Option 2 are used, the total for the proposed East Anglia THREE project alone increases to 12.21 individuals. This additional mortality would result in no detectable effect on the Flamborough & Filey Coast pSPA population of gannets. It is, therefore, reasonable to assess that there will be no adverse effect on the integrity of Flamborough and Filey Coast pSPA as a result of gannet collisions at the proposed East Anglia THREE project alone. The In-combination assessment suggests a collision mortality of 199 birds from Flamborough & Filey Coast pSPA population per year at East Anglia THREE of all age classes and 108 of these being adults. Natural England's assessment for East Anglia ONE included consideration of the level of annual mortality which the Flamborough and Filey Coast pSPA population could sustain, which was reported as between 286 and 361 (Natural England 2013). This estimate was based on the population size estimated in 2008 (7,859 AON), which has since increased to 11,061 AON (2012). Updating the Potential Biological Removal (PBR) calculations on which the Natural England figures were based using this population yields an updated threshold of 402 individuals. It is, therefore, reasonable to assess that there will be no adverse effect on the integrity of Flamborough and Filey Coast pSPA as a</p>									

result of gannet collisions at the proposed East Anglia THREE project in-combination with other projects.

Name of European Site: Outer Thames Estuary SPA									
Distance to East Anglia THREE Site 123km (a)									
Site Features	Adverse Effect on Integrity due to proposed East Anglia THREE project								
	Collision mortality			Displacement/Disturbance			Barrier Effect		
	C	O	D	C	O	D	C	O	D
Nonbreeding red-throated divers				N (a)					
<p>a) The sub-sea cable from East Anglia THREE site will pass through part of this SPA.</p> <p>b) Cable laying operations during construction will disturb birds from the immediate vicinity of cable-laying vessels. Assessment indicates that between 18.6 and 22.8 divers would be displaced at any one time during cable laying. This would lead to a 0.6% increase in diver density in other parts of the SPA. A worst case scenario assuming 10% of displaced birds die would add 0.1 to 0.2% to the natural mortality during two years. This is too small to be detectable and is therefore considered not to be significant. It is therefore, reasonable to assess that there will be no adverse effect on the integrity of Outer Thames Estuary SPA.</p>									

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