



Norfolk Vanguard Offshore Wind Farm Habitats Regulations Assessment -Screening Matrices (Updated)

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Photo: Kentish Flats Offshore Wind Farm





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1 SCREENING MATRICES

1.1 Introduction

- This document provides the updated Habitats Regulations Assessment (HRA) screening matrices for Norfolk Vanguard Offshore Wind Farm. The matrices summarise the information provided in Appendix 5.1 (Offshore Habitats Regulations Assessment (HRA) Screening) of the Information to Support HRA report (document 5.3 of the application).
- 2. The following European sites have been included in the screening matrices in response to advice received from the French Agency for Biodiversity during the Norfolk Vanguard Examination:
 - Bancs Des Flandres Special Protection Area (SPA), and
 - Cap Gris Nez SPA.
- 3. The screening matrices for the following European sites have been updated in response to advice received from Natural England during the Norfolk Vanguard Examination
 - Breydon Water SPA and Ramsar,
 - Broadland SPA and Ramsar,
 - Flamborough and Filey Coast potential Special Protection Area (pSPA),
 - North Norfolk Coast SPA and Ramsar, and
 - Outer Thames Estuary SPA and pSPA extension

1.2 Effects Considered

4. Potential effects upon the European sites which are considered within the submitted Information to Support HRA report are provided in Table 1.1.

Site Type	Feature(s)	Potential Effects
Special Protection Area (SPA)	All birds	Offshore effects Collision mortality Displacement/Disturbance Barrier effect Cumulative/ In-combination
		 Onshore effects Direct effects within SPA boundary Direct effects on ex-situ habitats Indirect effects within SPA boundary Indirect effects on ex-situ habitats
Special Area of Conservation/Site	Benthic habitats	 Permanent loss (and introduction of new sediment where applicable) Temporary physical disturbance Smothering due to increased suspended sediment

Table 1.1 Potential Effects consider in Screening





Site Type	Feature(s)	Potential Effects
of Community Importance (SAC/SCI)		 Re- mobilisation of contaminated sediments Underwater noise and vibration Cumulative/ In-combination
	Marine mammals	 Underwater noise Vessel Interactions Indirect effects on prey Changes to water quality Cumulative/ In-combination
	Fish	 Permanent loss (and introduction of new sediment where applicable) Temporary physical disturbance Smothering due to increased suspended sediment Re- mobilisation of contaminated sediments Underwater noise and vibration Electromagnetic fields (EMF) Cumulative/ In-combination
	Terrestrial	 Direct effects (e.g. habitat loss) Impacts on ex-situ habitats functionally connected to the SAC Impacts from alterations to geology and land contamination Disturbance due to groundwater / hydrology changes Impacts from noise disturbance Impacts from changing air quality Impacts from light disturbance Impacts from visual disturbance

1.3 Sites Considered

- 5. The methodology for screening of sites and effects is discussed in Appendix 5.1 of the Information to Support HRA report.
- 6. The following sites were included in the Screening stage.

Norfolk Vanguard Reference Number	Designated site	Ornithology	Marine Mammals	Benthic Habitats	Fish	Terrestrial
1	Abberton Reservoir SPA & Ramsar	\checkmark				
2	Abers - Côtes des légendes SAC		✓			
3	Alde, Ore and Butley Estuaries SAC			~		
4	Alde-Ore Estuary SPA & Ramsar	✓				
5	Archipel des Glénan SAC		✓			
6	Baie De Canche Et Couloir Des Trois Estuaires SCI		✓		~	
7	Baie de Morlaix SAC		✓			
8	Baie de Seine Occidentale SCI		✓			
9	Baie de Seine Occidentale SPA	✓				
10	Baie de Seine Orientale SAC	\checkmark				
11	Bancs Des Flandres SAC		✓	✓		
12	Bancs Des Flandres SPA	✓				



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Vanguard Reference	Designated site	Ornithology	Marine Mammals	Benthic Habitats	Fish	Terrestrial
Number						
13	Bassurelle Sandbank SCI			✓		
14	Benfleet and Southend Marshes SPA & Ramsar	~				
15	Berwickshire and North Northumberland Coast SAC		✓	~		
16	Blackwater Estuary (Mid-Essex Coast Phase 4) SPA & Ramsar	✓				
17	Borkum-Riffgrund SCI		 ✓ 		✓	
18	Borkum-Riffgrund SPA	✓				
19	Braemar Pockmarks SAC			✓		
20	Breydon Water SPA & Ramsar	✓				
21	Broadland SPA & Ramsar	\checkmark				
22	Bruine Bank pSPA	✓				
23	Buchan Ness to Collieston Coast SPA	✓				
24	Calf of Eday SPA	✓				
25	Cap Sizun SAC		✓			
26	Cap Gris Nez SPA	\checkmark				
20	Chausey SCI	✓ ✓				
28	Chesil Beach and The Fleet SPA & Ramsar	~				
29	Chichester and Langstone Harbours SPA & Ramsar	~				
30	Colne Estuary (Mid-Essex Coast Phase 2) SPA & Ramsar	✓				
31	Copinsay SPA	✓				
32	Coquet Island SPA	✓				
33	Côte de Granit Rose-Sept lles SAC	✓				
34	Cromarty Firth SPA & Ramsar	✓				
35	Crouch and Roach Estuaries (Mid- Essex Coast Phase 3) SPA & Ramsar	✓				
36	Deben Estuary SPA & Ramsar	✓				
37	Dengie (Mid-Essex Coast Phase 1) SPA & Ramsar	~				
38	Doggerbank SCI		✓			
39	Doggersbank SCI		✓			
40	Dornoch Firth and Loch Fleet SPA & Ramsar	✓				
41	Dünenlandschaft Süd-Sylt SAC		✓			
42	Dunes De La Plaine Maritime Flamande SAC		✓	✓		
43	East Caithness Cliffs SPA	\checkmark				
44	Essex Estuaries SAC			✓		
44				•		
45	Estuaire de la Canche, dunes picardes plaquées sur l'ancienne falaise, forêt d'Hardelot et falaise d'Equihen SCI		✓			





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Norfolk						
Vanguard Reference Number	Designated site	Ornithology	Marine Mammals	Benthic Habitats	Fish	Terrestrial
46	Estuaire de la Seine SCI		✓			
47	Estuaires Et Littoral Picards SAC		√		✓	
48	Exe Estuary SPA & Ramsar	✓				
49	Fair Isle SPA	✓				
50	Falaise du Bessin Occidental SPA	✓				
51	Falaises Du Cran Aux Oeufs et du Cap Gris-Nez, Dunes du Chatelet, Marais de Tardinghen et Dunes de Wissant SCI		~	~		
52	Falaises et Pelouses du Cap Blanc Nez, du Mont d'Hubert, des Noires Mottes, du Fond de la Forge et du Mont de couple SCI			*		
53	Faray and Holm of Faray SAC		\checkmark			
54	Farne Islands SPA	✓				
55	Fetlar SPA	✓				
56	Firth of Forth SPA & Ramsar	✓				
57	Firth of Tay & Eden Estuary SPA & Ramsar	✓				
58	Flamborough and Filey Coast pSPA	✓				
59	Flamborough Head SAC			✓		
60	Forth Islands SPA	✓				
61	Foula SPA	✓				
62	Foulness (Mid-Essex Coast Phase 5) SPA & Ramsar	✓				
63	Fowlsheugh SPA	✓				
64	Frisian Front pSPA	✓				
65	Gibraltar Point SPA & Ramsar	✓				
66	Great Yarmouth North Denes SPA	√				
67	Greater Wash pSPA	✓				
68	Gule Rev SCI		✓			
69	Haisborough, Hammond and Winterton SAC			✓		
70	Hamburgisches Wattenmeer SCI		✓			
71	Hamford Water SPA & Ramsar	✓				
72	Helgoland mit Helgoländer Felssockel SAC		✓			
73	Hermaness, Saxa Vord and Valla Field SPA	✓				
74	Hornsea Mere SPA	✓				
75	Hoy SPA	✓				
76	Humber Estuary SAC		✓	✓	✓	
77	Humber Estuary SPA & Ramsar	✓				
78	Hund und Paapsand SCI		\checkmark			
79	Imperial Dock Lock, Leith SPA	\checkmark				
80	Inner Dowsing, Race Bank and North Ridge SCI			✓		
81	Inner Moray Firth SPA & Ramsar	✓				





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Norfolk Vanguard Reference	Designated site	Ornithology	Marine Mammals	Benthic Habitats	Fish	Terrestrial
Number						
82	Isle of May SAC		✓			
83	Klaverbank SCI		\checkmark			
84	Knudegrund SAC		√			
85	Kosterfjorden-Väderöfjorden SAC		✓			
86	Küsten- und Dünenlandschaften Amrums SAC		✓			
87	Lindisfarne SPA & Ramsar	\checkmark				
88	Littoral Cauchois SAC		\checkmark			
89	Littoral Seino-Marin SPA	\checkmark				
90	Loch of Strathbeg SPA & Ramsar	\checkmark				
91	LØnstrup RØdgrund SAC		✓			
92	Margate and Long Sands SCI			\checkmark		
93	Marwick Head SPA	✓				
94	Medway Estuary and Marshes SPA & Ramsar	✓				
95	Minsmere-Walberswick SPA & Ramsar	~				
96	Montrose Basin SPA & Ramsar	\checkmark				
97	Moray and Nairn Coast SPA & Ramsar	~				
98	Mousa SPA	✓				
99	Muhlenberger Loch/Nesssand SCI		✓			
100	Nationalpark Niedersächsisches Wattenmeer SCI		✓			
101	Noordzeekustzone SAC		✓	\checkmark	\checkmark	
102	Norfolk Valley Fens SAC					✓
103	North Caithness Cliffs SPA	✓				
104	North Norfolk Coast SPA & Ramsar	✓				
105	North Norfolk Sandbanks and Saturn Reef SAC			~		
106	Northumbria Coast SPA & Ramsar	\checkmark				
107	Noss SPA	✓				
108	NTP S-H Wattenmeer und angrenzende Küstengebiete SAC		✓			
109	Oosterschelde SAC		✓			
110	Orfordness - Shingle Street SAC			✓		
111	Östliche Deutsche Bucht SPA	✓				
112	Ouessant-Molène SAC		✓			
113	Outer Thames Estuary SPA	✓				
114	Panache De La Gironde Et Plateau Rocheux De Cordouan SAC		✓			
115	Papa Stour SPA	✓				
116	Papa Westray (North Hill and Holm) SPA	✓				
117	Paston Great Barn SAC					✓
118	Pentland Firth Islands SPA	✓				
119	Pertuis Charentais SAC		✓			
		1	1			





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Vanguard	Designated site	Ornithology	Marine	Benthic	Fish	Terrestrial
Reference	Designated site	Officiology	Mammals	Habitats	1 1511	renestiiai
Number						
120	Portsmouth Harbour SPA & Ramsar	✓				
121	Presqu'ile De Crozon SAC		✓			
	Ramsar-Gebiet S-H Wattenmeer					
122	und angrenzende Küstengebiete SPA	✓				
123	Récifs Gris-Nez Blanc-Nez SCI		✓	✓		
124	Ridens et dunes hydrauliques du détroit du Pas-de-Calais SCI		~	✓		
125	River Derwent SAC				\checkmark	
126	River Wensum SAC					✓
127	Ronas Hill - North Roe and Tingon SPA	✓				
128	Rousay SPA	√				
129	Sandbanker ud for Thorsminde SAC		✓			
130	Sandbanker ud for Thyboron SAC		√			
131	SBZ 1 / ZPS 1 SAC		 ✓ 			
132	SBZ 2 / ZPS 2 SAC		\checkmark			
133	SBZ 3 / ZPS 3 SAC		\checkmark			
134	Scanner Pockmark SAC			✓		
	Schleswig-Holsteinisches					
135	Elbastuar und angrenzende Flachen SAC		✓			
136	Seevogelschutzgebiet Helgoland SPA	✓				
137	Skagens Gren og Skagerrak SAC		√			
138	Solent and Southampton Water SPA & Ramsar	✓				
139	Southern North Sea cSAC		✓			
140	St Abb's Head to Fast Castle SPA	\checkmark				
141	Steingrund SAC		√			
142	Store Rev SCI		\checkmark			
142	Stour and Orwell Estuaries SPA & Ramsar	✓				
144	Sumburgh Head SPA	✓				
		-	 ✓ 			
145	Sydlige Nordsø SAC		•			
146	Sylter Außenriff SCI	✓				
147	Teesmouth and Cleveland Coast SPA & Ramsar	✓				
148	Thames Estuary and Marshes SPA & Ramsar	✓				
149	Thanet Coast and Sandwich Bay SPA & Ramsar	✓				
150	Thanet Coast SAC			✓		
151	The Broads SAC					✓
152	The Swale SPA & Ramsar	✓				
152	The Swale SPA & Ramsar	✓				<u> </u>





Norfolk Vanguard Reference Number	Designated site	Ornithology	Marine Mammals	Benthic Habitats	Fish	Terrestrial
153	The Wash and North Norfolk Coast SAC		✓	~		
154	The Wash SPA & Ramsar	\checkmark				
155	Thyboron Stenvolde SCI		\checkmark			
156	Tregor Goëlo SAC		\checkmark			
157	Troup, Pennan and Lion`s Heads SPA	~				
158	Unterelbe SCI		✓			
159	Unterems und Außenems SCI		✓			
160	Vadehavet med Ribe Å, Tved Å og Varde Å vest for Varde SAC		✓			
161	Vlaamse Banken SAC		✓	✓	✓	
162	Vlakte van de Raan SCI/SAC		✓		✓	
163	Voordelta SAC and SPA	√	✓	✓	✓	
164	Waddenzee SPA	\checkmark				
165	Waddenzee SAC		√	\checkmark		
166	West Westray SPA	\checkmark				
167	Westerschelde & Saeftinghe SAC		✓		\checkmark	
168	Ythan Estuary, Sands of Forvie and Meikle Loch SPA	✓				







1.4 Key to effects

- 7. A summary of the evidence presented in the determination of the risk of likely significant effects (LSE) on the relevant qualifying features of a site is detailed within the footnotes to the screening matrices below.
- 8. The following abbreviations are used within the screening matrices:
 - Y = LSE **cannot** be excluded
 - N = LSE **can** be excluded
 - C = construction
 - O = operation
 - D = decommissioning
- 9. Where effects are not applicable to a particular feature they are greyed out.





Site	1											
Name of European Site:	Abberton	perton Reservoir SPA and Ramsar										
Distance to Norfolk Vanguard (km)	150											
Site Features Likely effect(s) of Norfolk Vanguard												
	Collision mortality Displacement/Disturbance Barrier Effect						Cumulative/In-combination					
	С	0	D	С	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named features shoveler Anas clypeata, teal Anas crecca, wigeon Mareca penelope, gadwall Mareca strepera, pochard Mareca strepera, tufted duck Aythya fuligula, goldeneye Bucephala clangula, mute swan Cygnus olor, coot Fulica atra, great crested grebe Podiceps cristatus		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Breeding cormorant <i>Phalacrocorax</i> carbo		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)

(a) Survey data show no evidence of the SPA features found at that site occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(b) Maximum foraging range of breeding cormorants from their colonies is 35km (Thaxter et al. 2012); the Norfolk Vanguard site is therefore located far beyond the maximum range and so has no breeding season connectivity. It is extremely unlikely that cormorants from Abberton Reservoir SPA would visit the Norfolk Vanguard site in the nonbreeding season as they mostly overwinter in freshwater habitat in southern England.

(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Abberton Reservoir SPA and Ramsar.

HRA Screening Matrices





Site	2	2													
Name of European Site:	Abers - C	bers - Côtes Des Legendes SAC													
Distance to Norfolk Vanguard (km)	667	667													
Site Features	Likely eff	Likely effect(s) of Norfolk Vanguard													
	Underwater noise		Vessel	Interact	ions	Indirect effects onChanges to wpreyquality				er In combination					
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Grey seal Halichoerus grypus	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)	N (a)	N (a)
a) The distance between the potentia	l impact rar	nge of No	orfolk Va	anguard	and the e	extent of a	any effec	t on indiv	iduals fro	om this si	te would	result in	no poten	tial for LS	ÈE.





Name of European Site: Distance to Norfolk Vanguard (km)	Alde, 68	Ore and	l Butley	Estuarie	es SAC													
Site Features	Likely	effect(s) of Nor	folk Van	guard													
	Perma	inent lo	SS	Tempo disturk	orary pł oance	nysical	increa	ering du sed nded sea		-	obilisatio ninated ents			water n bration	oise	In com	nbinatio	n
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Offshore habitats																		
Mudflats and sandflats not covered by seawater at low tide	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)
Estuaries	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a





Site 4												
Name of European Site:	Alde-Ore Es	tuary SPA	and Ramsa	ir								
Distance to Norfolk Vanguard (km) 9	2											
Site Features	Likely eff	ect(s) of N	orfolk Vang	guard								
	Collision	mortality		Displace	ment/Dist	urbance	Barrier E	ffect		Cumulat	ive/In-com	bination
	С	0	D	с	0	D	С	0	D	с	0	D
Breeding lesser black-backed gulls Larus fuscus		Y (a)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (h)	Y (a)	N (h)
Breeding marsh harrier Circus aeruginosus		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (h)	N (h)	N (h)
Breeding avocet Recurvirostra avosetta		N (d)		N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (h)	N (h)	N (h)
Breeding little tern Sternula albifrons		N (e)		N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (e)
Breeding Sandwich tern Sterna sandvicensis		N (f)		N (f)	N (f)	N (f)	N (f)	N (f)	N (f)	N (h)	N (h)	N (h)
Nonbreeding ruff <i>Philomachus pugnax,</i> avocet, redshank <i>Tringa totanus</i>		N (g)		N (g)	N (g)	N (g)	N (g)	N (g)	N (g)	N (h)	N (h)	N (h)

(a) Model predictions of collision mortality indicate that LSE cannot be ruled out at screening and so requires further consideration.

(b) Evidence indicates that lesser black-backed gulls are not affected by displacement, disturbance or barrier effects at offshore wind farms.

(c) Marsh harrier is a migrant species. Satellite tracking suggests that marsh harriers migrate overland to the south coast of England and over the Channel to France, rather than across the North Sea.

(d) Avocet has not been observed in the Norfolk Vanguard site during bird surveys. It is highly unlikely that avocets from this SPA will migrate through the Norfolk Vanguard site, and if they did, their flight height is likely not to be at collision risk height.

(e) Breeding little tern has a maximum foraging range of 11km from colonies, so would have no connectivity with the Norfolk Vanguard site. Migrating little terns are considered to be 'extremely coastal on passage with very few sightings in open ocean or inland' (Forrester et al. 2007), so are unlikely to pass through the Norfolk Vanguard site.

(f) Breeding Sandwich tern has a maximum foraging range of 54km from colonies, so would have no connectivity with the Norfolk Vanguard site. Only very small numbers of terns of any species were observed in the Norfolk Vanguard site in surveys. Migrating Sandwich terns from this SPA population will form a very small fraction of the very small total numbers of terns passing the site on passage.

(g) Ruff, avocet and redshank have not been observed during bird surveys at the Norfolk Vanguard site. It is highly unlikely that these birds would migrate through the Norfolk Vanguard site as their migration is likely to take a coastal route and cross sea at narrow points such as The English Channel. If they did migrate through the Norfolk Vanguard site their flight height is likely not to be at collision risk height.





Site	4
Name of European Site:	Alde-Ore Estuary SPA and Ramsar
Distance to Norfolk Vanguard (km)	92
(h) The predicted effect attributable to	Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for
these features at Alde-Ore Estuary	SPA and Ramsar.

Site	5														
Name of European Site:	Archip	el des Gl	énan SA	NC											
Distance to Norfolk Vanguard (km)	713														
Site Features	Likely e	effect(s)	fect(s) of Norfolk Vanguard												
	Underv	water noise Vessel Interactions Indirect effects on prey Changes to water In combination quality													
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact r	ange of	Norfolk	Vanguaro	d and the	extent of	f any effe	ct on indi	viduals fr	om this si	te would	result in	no poten	tial for LS	E.





Enhancing Sc	ciety logeth	ler																			
Site				6																	
Name of Euro	pean Si	te:		Baie d	de Canc	he et co	uloir de	s trois e	stuaires	SAC											
Distance to N	orfolk V	anguar	d (km)	254																	
Marine Mam	mals																				
Site Features			Lil	kely effe	ect(s) of	Norfolk	Vangua	rd													
			U	nderwat	er noise	2	Vesse	l Interac	ctions	I	ndirect	effects o	on prey	Chan qualit	ges to w	vater		In comb	ination		
			С	(C	D	С	0	D	(c	0	D	С	0	D		с	0	D	
Harbour porp phocoena	oise Pho	ocoena	N	(a) î	N (a)	N (a)	N (a)	N (a)) N (a) I	N (a)	N (a)	N (a)	N (a)		N	(a)	N (a)	N (a)	N (a)	
Harbour (com vitulina	mon) se	al Phoc	a N	(a) 1	N (a)	N (a)	N (a)	N (a)) N (a) I	N (a)	N (a)	N (a)	N (a)		N	(a)	N (a)	N (a)	N (a)	
Grey seal			N	(a) 1	N (a)	N (a)	N (a)	N (a)) N (a) I	N (a)	N (a)	N (a)	N (a)		N	(a)	N (a)	N (a)	N (a)	
Fish					I														<u> </u>	1	
Site	Likely	effect(s)) of Nor	folk Van	guard																
Features	Perma loss	inent ha	ibitat	Tempo disturi	orary pl bance	nysical	Smoth increas susper sedime	nded	ue to		nobilisat aminateo nents			water n bration	oise	Electro fields	omagne (EMF)	etic	In com	nbinatio	n
	С	0	D	с	0	D	с	0	D	с	0	D	с	0	D	с	0	D	с	0	D
Salmon Salmo salar	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)
Site Features	Likely	effect(s)) of Nor	folk Van	guard			·													

HRA Screening Matrices

Norfolk Vanguard Offshore Wind Farm





Site				6																	
Name of Euro	pean Si	te:		Baie d	de Cancl	he et co	uloir de	s trois e	stuaires	SAC											
Distance to N	orfolk V	anguar	d (km)	254																	
	Permanent habitat loss C O				orary ph oance	nysical	Smoth increa susper sedime	nded	ue to	-	obilisatio ninated ents			water n bration	oise	Electro fields	omagne (EMF)	tic	In com	nbinatio	n
	С	0	D	с	0	С	0	с	0	С	0	D	С	0	D	с	0	D	с	0	D
Sea lamprey Petromyzon marinus	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a
River amprey <i>Campetra</i> fluviatilis	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a
Allis shad Alosa alosa	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a





Site	7															
Name of European Site:	Baie D	e Morlai	x SAC													
Distance to Norfolk Vanguard (km)	622															
Site Features	Likely e	effect(s)														
	Underv	water no														
										quality						
	С	0	D	C	0	D	С	0	D	С	0	D	С	0	D	
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)	
a) The distance between the potentia	l impact i	range of	Norfolk	Vanguaro	and the	extent of	f any effe	ct on indi	ividuals fr	om this s	ite would	result in	no poten	tial for LS	E.	

Site	8														
Name of European Site:	Baie d	e Seine (Occident	ale SAC											
Distance to Norfolk Vanguard (km)	429														
Site Features	Likely (effect(s)													
	Under	water no	ffect(s) of Norfolk Vanguard vater noise Vessel Interactions Indirect effects on prey Changes to water quality												
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	and the	extent o	f any effe	ct on ind	ividuals fr	om this s	ite would	result in	no poten	tial for LS	ε.

HRA Screening Matrices

Norfolk Vanguard Offshore Wind Farm





Site	9											
Name of European Site:	Baie de S	eine Occid	entale SPA	1								
Distance to Norfolk Vanguard (km)	429											
Site Features	Likely eff	ect(s) of No	orfolk Vang	uard								
	Collision	mortality		Displace	ment/Distu	ırbance	Barrier E	ffect		Cumula	tive/In-con	nbination
	С	0	D	С	0	D	С	0	D	С	0	D
Breeding, wintering and passage waterbirds		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
 (a) Survey data show little or no are likely to result in negligibl southern wintering areas and rather than crossing the Nortl extremely small. (b) The predicted effect attributa these features at Baie de Sein 	e numbers using stagi h Sea to the ble to Norf	passing thing areas sub e UK. At a c folk Vangua	rough the N uch as Baie listance of 4	lorfolk Var de Seine C 429km, the	nguard site Occidentale e chances o	as most m in France p of birds fror	igrant wat bass along n this SPA	erfowl mov the west E moving thr	ving betwe uropean fly ough the N	en norther yway along Norfolk Van	n breeding the contin guard site	areas and ental coast are





10 Baie de	e Seine (Drientale	SAC											
408														
Likely e	effect(s)													
Underv	water no	oise	Vessel I	nteractio	ons	Indirec	t effects o	on prey	Change quality	s to wate	r	In comb	oination	
С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
-	Baie de 408 Likely e Underv	Baie de Seine C 408 Likely effect(s) Underwater no C O	Baie de Seine Orientale 408 Likely effect(s) of Norfo Underwater noise C O	Baie de Seine Orientale SAC 408 Likely effect(s) of Norfolk Vangu Underwater noise Vessel I C O D C	Baie de Seine Orientale SAC 408 Likely effect(s) of Norfolk Vanguard Underwater noise Vessel Interaction C O D C	Baie de Seine Orientale SAC 408 Likely effect(s) of Norfolk Vanguard Underwater noise Vessel Interactions C O D C O	Baie de Seine Orientale SAC 408 Likely effect(s) of Norfolk Vanguard Underwater noise Vessel Interactions C O D C O D C O D	Baie de Seine Orientale SAC 408 Likely effect(s) of Norfolk Vanguard Underwater noise Vessel Interactions C O D C O D C O	Baie de Seine Orientale SAC 408 Likely effect(s) of Norfolk Vanguard Underwater noise Vessel Interactions C O D C O D C O D	Baie de Seine Orientale SAC 408 Likely effect(s) of Norfolk Vanguard Underwater noise Vessel Interactions Indirect effects on prey Change quality C O D C O D C	Baie de Seine Orientale SAC 408 Likely effect(s) of Norfolk Vanguard Underwater noise Vessel Interactions Indirect effects on prey quality C O D C O D C O	Baie de Seine Orientale SAC 408 Likely effect(s) of Norfolk Vanguard Underwater noise Vessel Interactions C O D C D C D C D C D C D C D C D C D C D D C D D C D D C D D D D D	Baie de Seine Orientale SAC 408 Likely effect(s) of Norfolk Vanguard Underwater noise Vessel Interactions Indirect effects on prey quality C O D C O D C O D C	Baie de Seine Orientale SAC 408 Likely effect(s) of Norfolk Vanguard Underwater noise Vessel Interactions Indirect effects on prey Changes to water quality C O D C O D C O





Site			11															
Name of European Site			Bancs d	es Fland	res SAC													
Distance to Norfolk Var	guard (km)	162															
Marine Mammals																		
Site Features	Likely e	effect(s)	of Norfo	olk Vangı	uard													
	Under	water no	oise	Vessel	Interact	ions	Indired prey	t effects	s on	Change quality	es to wa	ter	In com	binatio	ı			
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D			
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)]		
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)			
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)			
Benthic Habitats											-							
Site Features	Perma	nent los	S	Tempo disturb	orary phy bance	vsical		ering du sed susp ent			obilisatio ninate d ents	n of	Under vibrati		oise and	In com	bination	1
	с	0	D	С	0	D	С	0	D	С	0	D	С	0	D	с	0	D
Sandbanks which are slightly covered by sea water all the time	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)





Site	12											
Name of European Site:	Banc Des	Flandres S	SPA									
Distance to Norfolk Vanguard (km)	162											
Site Features	Likely eff	ect(s) of No	orfolk Vang	uard								
	Collision	mortality		Displace	ment/Distu	rbance	Barrier Ef	ffect		Cumulati	ve/In-comb	ination
	с	0	D	с	0	D	с	0	D	с	0	D
Wintering and passage species: razorbill, brent goose, great skua, black tern, fulmar, red-throated diver, black-throated diver, Mediterranean gull, little gull, velvet scoter, common scoter, red-breasted merganser, gannet, Leach's storm petrel, great crested grebe, red- necked grebe, kittiwake, common eider, Arctic skua, omarine skua, common tern, little tern, Sandwich tern, Arctic tern, guillemot		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Breeding little tern		N(c)		N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(b)	N(b)	N(b)

a) Many of the named species have not been recorded on the Norfolk Vanguard site and are not ones associated with offshore locations. With respect to species named as nonbreeding features of the SPA, these consist of many of the seabird species which pass through the southern North Sea and English Channel on migration. As such the potential impacts on those species recorded at Norfolk Vanguard has been assessed in terms of the wider Biologically Defined Minimum Population Scales (BDMPS) populations (see Furness 2015). The Applicant considers this to be the appropriate population scale for nonbreeding impacts on the species named at this SPA, since the majority of individuals will not be resident at the SPA but will instead pass through. Furthermore, given the relative size of the SPA population estimates for the migratory species compared with the total passage populations, the effects on the SPA populations due to Norfolk Vanguard would be negligible.

b) The predicted effect attributable to the proposed Norfolk Vanguard project is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Bancs des Flandres SPA.

c) Breeding little tern has a maximum foraging range of 11km from colonies, so would have no connectivity with Norfolk Vanguard. Migrating little terns are considered to be 'extremely coastal on passage with very few sightings in open ocean or inland' (Forrester et al. 2007), so are unlikely to pass through the Norfolk Vanguard site.





Site Name of Eu	ropean S	ite:		13 Bassure	elle Sand	bank SAC												
Distance to	Norfolk	Vanguaro	l (km)	235														
Site	Likely e	ffect(s) o	f Norfolk	Vanguar	d													
Features	Perma	nent loss		Tempo disturb	orary phy bance	rsical		ering du sed susp ent			obilisation ninated ents	n of		water no bration	vise	In com	bination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Sandbanks which are slightly covered by sea water all the time	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)
(a) The dis	stance be	tween th	e offshor	e project	area anc	the desi	gnated si	te is beyo	ond the ra	ange of a	ny potent	ial LSE.	1			I	1	1





			and Rams	ai							
182											
Likely ef	fect(s) of N	orfolk Van	guard								
Collision	mortality		Displace	ment/Dist	urbance	Barrier E	ffect		Cumulat	ive/In-com	nbinatior
С	0	D	с	0	D	С	0	D	с	0	D
	N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
, ,	Collision C C	Likely effect(s) of N Collision mortality C O N (a)	Likely effect(s) of Norfolk Van Collision mortality C O D S N (a) dence of Benfleet & Southend Mars	Likely effect(s) of Norfolk Vanguard Collision mortality Displace C O D C N (a) N (a) C C C C C C C C C C C C C C C C C C C	Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Distribution C O D C O S N (a) N (a) N (a) N (a) N (a) educe of Benfleet & Southend Marshes SPA features occome SPA features occome SPA features occome	Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Disturbance C O D C O D S N (a) N (a) N (a) N (a) N (a) N (a) es es of the second seco	Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Disturbance Barrier E C O D C O D C rs N (a) N (a) N (a) N (a) N (a) N (a) N (a)	Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Disturbance Barrier Effect C O D C O D C O rs N (a) educe of Benfleet & Southend Marshes SPA features occurring in the Norfolk Vanguard State D	Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Disturbance Barrier Effect C O D C O D S N (a) dence of Benfleet & Southend Marshes SPA features occurring in the Norfolk Vanguard site, and more Displacement/Disturbance Barrier Effect Displacement/Disturbance	Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Disturbance Barrier Effect Cumulat C O D C O D C O D C S N (a) N (b) S dence of Benfleet & Southend Marshes SPA features occurring in the Norfolk Vanguard site, and migrations of the Norfolk Vanguard site, and Norfolk Vanguard site, and migrations of t	Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Disturbance Barrier Effect Cumulative/In-control C O D C O D C O O S N (a) N (b) N





Site			15															
Name of European Site:			Berwick	shire an	d North	Northur	nberlan	d Coast S	AC									
Distance to Norfolk Van	guard (I	km)	368															
Marine Mammals																		
Site Features	Likely e	effect(s)	of Norfo	lk Vangı	iard													
	Underv	water no	oise	Vessel	Interact	ions	Indirec prey	t effects	on	Change quality	es to wa	ter	In com	binatior	I			
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D			
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)	1		
Benthic Habitats																		
Site Features	Permai	nent los	S	Tempo disturb	rary phy ance	vsical		ering du sed susp ent			obilisatio ninate d ents	n of	Under vibrati	water no on	oise and	In com	bination)
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	с	0	D
Coastal lagoons	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)
Submerged or partially submerged sea caves	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)
submerged sea cavesa) The distance betweeb) The distance betwee	en the p	otential	impact r	ange of	Norfolk	Vanguar	d and th	e extent	of any e	ffect on		als from		would r				





Site16Name of European Site:BlackvDistance to Norfolk Vanguard (km)152	vater Estu	ary SPA a	and Ramsa	ar								
Site Features	Likely e	effect(s) c	of Norfolk	Vanguard								
	Collisic	n mortal	ity	Displace	ment/Dist	urbance	Barrier E	ffect		Cumulat	ive/In-com	bination
	С	0	D	с	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named features brent goose, dunlin, ringed plover, black-tailed godwit <i>Limosa limosa limosa</i> , grey plover		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (f)	N (f)	N (f)
Nonbreeding hen harrier Circus cyaneus		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (f)	N (f)	N (f)
Breeding pochard		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (f)	N (f)	N (f)
Breeding ringed plover		N (d)		N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (f)	N (f)	N (f)
Breeding little tern		N (e)		N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (e)

(a) Survey data show little or no evidence of Blackwater Estuary SPA features occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(b) Survey data show no evidence of Blackwater Estuary SPA feature (hen harrier) occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(c) Survey data show no evidence of Blackwater Estuary SPA feature (pochard) occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(d) Survey data show no evidence of Blackwater Estuary SPA feature (ringed plover) occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(e) Breeding little tern has a maximum foraging range of 11km from colonies, so would have no connectivity with the Norfolk Vanguard site. Migrating little terns are considered to be 'extremely coastal on passage with very few sightings in open ocean or inland' (Forrester et al. 2007), so are unlikely to pass through the Norfolk Vanguard site.

(f) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Blackwater Estuary SPA and Ramsar.





Site		17	7																		
Name of Euro Site:	bean	Bo	orkum-	Riffgrur	nd (Borl	cum Re	eef Grou	nd) SCI													
Distance to No Vanguard (km		23	34																		
Marine mamn	nals																				
Site Features		Lil	kely eff	fect(s) o	f Norfo	lk Vang	guard														
		Ui	nderwa	ater nois	se	١	/essel In	teractio	ns	In	direct e	effects o	n prey	Ch	anges t	o water	quality	In-c	ombina	ntion	
		С		0	D	(2	0	D	С		0	D	С		0	D	С	С)	D
Harbour porpo	oise	Ν	N (a)	N (a)	N (a)	N (a)	N (a)	N (a	a) N	N (a)	N (a)	N (a) N	(a)		N (a)	N	(a)	N (a)	N (a)
Harbour (comi seal	mon)	Ν	N (a)													N	(a)	N (a)	N (a)		
Grey seal		Ν	N (a)	N (a)	N (a)	N (a)	N (a)	N (a	a) N	N (a)	N (a)	N (a) N	(a)		N (a)	N	(a)	N (a)	N (a)
Fish							I				I										1
Site Features	Perm habit	anent at loss		Tempo physic disturi	al		Smoth increas susper sedime	nded	ue to		iobilisat minate ients			water i bration			omagne (EMF)	tic	In co	mbinati	on
	с	0	D	С	0	D	С	0	D	с	0	D	с	0	D	С	0	D	С	0	D
Twaite shad Alosa fallax	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)





Site	18											
Name of European Site:	Borkum-Ri	ifgrund SP	Α									
Distance to Norfolk Vanguard (km)	234											
Site Features	Likely effec	t(s) of Nor	folk Vangu	iard								
	Collision m	ortality		Displace	ment/Dist	urbance	Barrier E	Effect		Cumulat	ive/In-con	nbination
	С	0	D	С	0	D	С	0	D	С	0	D
Nonbreeding seabird assemblage including as named features black- throated diver <i>Gavia arctica</i> , red- throated diver <i>Gavia stellata</i> , common gull <i>Larus canus</i> , lesser black-backed gull, great black-backed gull <i>Larus marinus</i> , little gull <i>Larus minutus</i> , kittiwake <i>Rissa</i> <i>tridactyla</i> , common tern <i>Sterna hirundo</i> , Arctic tern <i>Sterna paradisaea</i> , Sandwich tern, gannet <i>Morus bassanus</i> , guillemot <i>Uria aalge</i>		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)

a) Migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site during migration relative to the size of Biologically Defined Minimum Population Scale (BDMPS) regional populations. Not only are the sites 234km apart, but much of the seasonal movement of birds avoids crossing of the North Sea so that birds on the continental side of the North Sea are more likely to move along the continental coast rather than crossing to the UK.

b) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Borkum-Riffgrund SPA.





Site Name of Eu	ropean S	ite:		19 Braema	ar Pockm	arks SAC												
Distance to	Norfolk	Vanguaro	l (km)	663														
Site	Likely e	ffect(s) o	f Norfolk	Vanguar	d													
Features	Perma	nent loss		Tempo disturk	orary phy bance	vsical		ering du sed susp ent		-	obilisation ninated ents	n of		water no bration	oise	In com	bination	l
	С	0	D	С	0	D	с	0	D	С	0	D	С	0	D	С	0	D
Submarine structures made by leaking gases	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)





Site	20												
Name of European Site:	Breydon \	Water S	SPA and R	amsar									
Distance to Norfolk Vanguard (km)	53												
Site Features	Lik	ely effe	ect(s) of N	orfolk Vang	guard								
	Col	llision n	nortality		Displace	ment/Distu	urbance	Barrier E	ffect		Cumulat	ive/In-com	bination
	С		0	D	С	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named featu Bewick's swan Cygnus columbianus bewickii, ruff, golden plover Pluvialis apricaria, avocet, lapwing Vanellus vanellus	res		Y (a)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	Y (a)	N (b)
Breeding common tern			N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (d)	N (d)	N (d)
 (a) Natural England consider (b) Survey data show no eviresult in negligible numbers (c) SPA is far beyond the methrough the Norfolk Var (d) The predicted effect attrassessment for these feature 	idence of B pers passin aximum fo nguard site ributable to	Breydon g throu raging r are like o Norfo	Water SF igh the No range of c ely to be e ilk Vangua	PA features orfolk Vang ommon te xtremely s ord is so sm	occurring uard site c rn (30km) mall relati nall that it	in the Nor luring mig so has no l ve to BDM	folk Vangu ration. breeding se PS.	uard site, a eason conr	nd migrationectivity. N	ons of bird lumbers of	s from this SPA comm	non tern m	





Site 21	L											
Name of European Site: Bi	oadland SP	A and Rams	sar									
Distance to Norfolk Vanguard (km) 53	6 (offshore p	project area	ı)									
Site Features	Likely e	effect(s) of I	Norfolk Va	nguard offs	shore proje	ect area						
	Collisio	n mortality		Displace	ement/Dist	urbance	Barrier	Effect		Cumula combin	•	
	С	0	D	С	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named features shoveler, wigeon, gadwall, Bewick's swa whooper swan, ruff		Y (a)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (c)	Y (a)	N (c)

(b) Survey data show no evidence of Broadland SPA features occurring in the proposed Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site during migration.

(c) The predicted effect attributable to the proposed Norfolk Vanguard project is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Broadland SPA and Ramsar.





Site	21											
Name of European Site:	Broadla	nd SPA and	d Ramsar									
Distance to Norfolk Vanguard (km)	3.6 (ons	hore proje	ct area)									
Site Features	Likely ef	fect(s) of N	Norfolk Var	nguard onsl	hore proje	ct area						
		ffects with site bound		Direct e habitat	effects on e s	ex-situ		effects wi site bound		Indirect habitats	effects on	ex-situ
	С	0	D	С	0	D	С	0	D	С	0	D
Bewick's Swan (<i>Cygnus columbianus</i> bewickii)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Bittern (Botaurus stellaris)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Hen Harrier (Circus cyaneus)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Ruff (Philomachus pugnax)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Whooper Swan (Cygnus cygnus)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Gadwall (Anas strepera)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Shoveler (Anas clypeata)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Widgeon (Anas penelope)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Pink-footed Goose (<i>Anser</i> brachyrhynchus)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Wildfowl assemblage	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Tundra Swan (Cygnus columbianus)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Eurasian wigeon (Anas penelope)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Gadwall (Anas strepera)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)

HRA Screening Matrices

Norfolk Vanguard Offshore Wind Farm





Site	21											
Name of European Site:	Broadla	nd SPA an	d Ramsar									
Distance to Norfolk Vanguard (km)	3.6 (ons	hore proje	ect area)									
Northern shoveler (<i>Anas clypeata</i>)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Pink-footed goose (<i>Anser</i> brachyrhynchus)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Greylag goose (Anser anser)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)

Broadland SPA and Ramsar. Consequently, these ex-situ habitats are not considered to be important habitats for the qualifying features of the Broadland SPA and Ramsar.





Site	22											
Name of European Site:	Bruine Banl	(Brown Ri	dge) pSP/	4								
Distance to Norfolk Vanguard (km)	ca.20km (a)											
Site Features	Likely e	effect(s) of I	Norfolk V	anguard								
	Collisio	n mortality		Displac	ement/Dis	turbance	Barrier	Effect		Cumula	tive/In-cor	nbinatio
	С	0	D	С	0	D	С	0	D	С	0	D
Nonbreeding common guillemots Uria aalge and razorbills Alca torda		N (b)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (d)	N (d)	N (d)

(a) It should be noted that the distance from the Norfolk Vanguard site to the pSPA is uncertain as the boundaries of the pSPA are under consultation at present.

(b) The designated features of Bruine Bank pSPA are likely to be common guillemot and razorbill, species for which low flight height results in low risk of collision with offshore wind turbines. Furthermore, birds wintering on Bruine Bank are likely to remain at the pSPA because it is a high-quality feeding habitat (i.e. the reason why this concentration of birds is being proposed for SPA status), and so these birds are unlikely to be at risk of collision at the Norfolk Vanguard site.

(c) Bruine Bank is high quality feeding habitat for nonbreeding piscivorous seabirds from breeding areas further north, so the birds in that pSPA are unlikely to pass through the Norfolk Vanguard site on migration as it lies west rather than north of the pSPA. Therefore, displacement, disturbance and barrier effect at the Norfolk Vanguard site will not be likely to affect birds on Bruine Bank pSPA.

(d) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Bruine Bank pSPA.





Site 2													
Name of European Site: B	chan Ness to Collieston Coast SPA												
Distance to Norfolk Vanguard (km) 556													
Site Features	Likely effect(s) of Norfolk Vanguard												
	Collision	Collision mortality			Displacement/Disturbance			Barrier Effect			Cumulative/In-combination		
	с	0	D	с	0	D	С	0	D	С	0	D	
Breeding seabird assemblage, including a named features kittiwake, shag <i>Phalacrocorax aristotelis</i> , fulmar, guillemot, herring gull <i>Larus argentatus</i>	;	N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	
 (a) Buchan Ness to Collieston Coast SPA is beyond maximum foraging range of designated seabird species so has no breeding season connectivity. Proportions of these populations migrating through the Norfolk Vanguard site are likely to be very small relative to BDMPS. (b) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Buchan Ness to Collieston Coast SPA. 													





Site 24														
Name of European Site: Ca	If of Eday	SPA												
Distance to Norfolk Vanguard (km) 76	0													
Site Features	Likely ef	fect(s) of N	lorfolk Van	guard										
	Collision	Ilision mortality Displacement/Disturbance Barrier Effect Cumulative/In-combination												
	С	Independent of the construction of the constructi												
Breeding seabird assemblage including as named features cormorant, fulmar <i>Fulmarus glacialis</i> , guillemot, kittiwake and great black-backed gull		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)		
 (a) Calf of Eday SPA is beyond m populations migrating throug (b) The predicted effect attribute assessment for these feature 	h the Norf able to Nor	olk Vangua folk Vangu	rd site are	likely to be	e very smal	ll relative t	o BDMPS.							

Site Name of European Site:	25 Cap Siz	un SAC													
Distance to Norfolk Vanguard (km)	711														
Site Features	· · · ·	Likely effect(s) of Norfolk Vanguard Underwater noise Vessel Interactions Indirect effects on prey Changes to water In combination													
	С	0	D	С	0	D	С	0	D	quality C	0	D	С	0	D
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact ı	ange of	Norfolk	Vanguarc	and the	extent of	f any effe	ct on indi	viduals fr	om this si	ite would	result in	no poten	tial for LS	E.





Site	26											
Name of European Site:	Caps Gris	Nez SPA										
Distance to Norfolk Vanguard (km)	210											
Site Features	Likely eff	ect(s) of No	orfolk Vang	uard								
	Collision	mortality	1	Displacer	nent/Distu	rbance	Barrier E	ffect		Cumulati	ve/In-comb	oination
	с	0	D	с	0	D	С	0	D	С	0	D
Wintering and passage species: razorbill, kingfisher, pintail, white- fronted goose, greylag goose, short- eared owl, greater scaup, bittern, brent goose, sanderling, dunlin, purple sandpiper, Scopoli's shearwater, great skua, Kentish plover, little ringed plover, ringed plover, whiskered tern, black tern, white stork, marsh harrier, hen harrier, little egret, merlin, peregrine, puffin, fulmar, black- throated diver, great northern diver, red-throated diver, common crane,		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
oystercatcher, black-winged stilt, storm petrel, red-backed shrike, Mediterranean gull, bar-tailed godwit, woodlark, velvet scoter, common scoter, smew, red-breasted merganser, black kite, red kite, gannet, curlew, whimbrel, osprey, honey buzzard, shag, cormorant, ruff, spoonbill, golden plover, grey												

HRA Screening Matrices

Norfolk Vanguard Offshore Wind Farm





Site	26
Name of European Site:	Caps Gris Nez SPA
Distance to Norfolk Vanguard (km)	210
plover, Slavonian grebe, great crested grebe, red-necked grebe, black-necked grebe, Manx shearwater, avocet, kittiwake, eider, long-tailed skua, Arctic skua, pomarine skua, little tern, roseate tern, common tern, Arctic tern, Sandwich tern, wood sandpiper, guillemot, lapwing	

species named as nonbreeding features of the SPA, these consist of many of the seabird species which pass through the southern North Sea and English Channel on migration. As such the potential impacts on those species recorded at Norfolk Vanguard has been assessed in terms of the wider Biologically Defined Minimum Population Scales populations (see Furness 2015). The Applicant considers this to be the appropriate population scale for nonbreeding impacts on the species named at this SPA, since the majority of individuals will not be resident at the SPA but will instead pass through. Furthermore, given the relative size of the SPA population estimates for the migratory species compared with the total passage populations, the effects on the SPA populations due to Norfolk Vanguard would be negligible.b) The predicted effect attributable to the proposed Norfolk Vanguard project is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Caps Griz Nez SPA.

Site Name of European Site: Distance to Norfolk Vanguard (km)	27 Chause 509	y SCI													
Site Features		ffect(s) vater no		olk Vangu	ard nteractio	ns	Indirect	effects c	n prov	Change	s to wate	r	In comb	vination	
	Underv		130	VESSELL	meraciiu	115	mulleci	enects c	in prey	quality	s to wate	1		mation	
	С	0	D	C	0	D	C	0	D	C	0	D	C	0	D

HRA Screening Matrices

Norfolk Vanguard Offshore Wind Farm





Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	impact i	ange of	Norfolk '	Vanguard	and the	extent of	any effe	ct on indiv	viduals fr	om this si	te would	result in I	no potent	tial for LS	Ε.

Site	28													
Name of European Site:	Chesil Bea	ach and 1	The Fleet	t SPA & Ra	msar									
Distance to Norfolk Vanguard (km)	420													
Site Features	Like	ely effect	ct(s) of No	orfolk Van	guard									
	Col	Collision mortality Displacement/Disturbance Barrier Effect Cumulative/In-combination												
	С	ision mortality Displacement/Disturbance Barrier Effect Cumulative/In-combination 0 D C 0 D C 0 D D												
Nonbreeding brent goose		N	N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	
 (a) Survey data show little of birds from this SPA are I (b) The predicted effect attrassessment for these features 	kely to res ibutable to	ult in ne Norfolk	egligible r k Vangua	numbers p rd is so sm	assing thro nall that it	ough the N would not	lorfolk Var	nguard site	·.	-	-	-	ons of	





	29											
	Chichester a	nd Langston	e Harbours	SPA & Ra	msar							
Distance to Norfolk Vanguard (km)	313											
Site Features	Likely	effect(s) of N	lorfolk Var	nguard								
	Collisi	on mortality		Displace	ement/Dist	urbance	Barrier	Effect		Cumula	itive/In-cor	nbinatio
	с	о	D	С	0	D	С	0	D	С	0	D
Migratory waterbird assemblage includ as named features pintail Anas acuta, shoveler, teal, wigeon, turnstone Arenc interpres, brent goose, sanderling Calid alba, dunlin, ringed plover, bar-tailed godwit Limosa lapponica, red-breasted merganser Mergus serrator, curlew Numenius arquata, grey plover, sheldu Tadorna tadorna, redshank	aria Iris	N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Breeding little tern, common tern, Sandwich tern		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)

(b) Little tern, common tern and Sandwich tern have maximum foraging ranges from colonies of 11km, 30km and 54km respectively, so there is no connectivity between the SPA and Norfolk Vanguard site. Furthermore, these species tend to forage in coastal waters rather than offshore. Therefore, collision risk, displacement and barrier effects can be excluded.

(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Chichester & Langstone Harbour SPA and Ramsar.





30	30												
Colne Estuary SPA and Ramsar	Colne Estua	iry SPA a	nd Ramsa	ır									
144	144												
Site Features	Lil	ikely effe	ct(s) of N	orfolk Van	guard								
	Co	ollision n	nortality		Displace	ment/Dist	urbance	Barrier B	Effect		Cumulat	ive/In-con	nbination
	с		0	D	с	0	D	С	0	D	С	0	D
Nonbreeding brent goose			N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (g)	N (g)	N (g)
Nonbreeding redshank			N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (g)	N (g)	N (g)
Nonbreeding hen harrier			N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (g)	N (g)	N (g)
Breeding pochard			N (d)		N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (g)	N (g)	N (g)
Breeding ringed plover			N (e)		N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (g)	N (g)	N (g)
Breeding little tern			N (f)		N (f)	N (f)	N (f)	N (f)	N (f)	N (f)	N (f)	N (f)	N (f)
 (a) Survey data show n likely to result in ne (b) Survey data show n likely to result in ne (c) Survey data show n likely to result in ne (d) Survey data show n likely to result in ne 	gligible numbe o evidence of gligible numbe o evidence of gligible numbe o evidence of	ers passi Colne Es ers passi Colne Es ers passi Colne Es	ng throug stuary SPA ng throug stuary SPA ng throug stuary SPA	the Norf feature (r the Norf feature (h the Norf feature (r	olk Vangu edshank) olk Vangu nen harrie olk Vangu pochard) o	ard site. occurring i ard site. ') occurrin ard site. ccurring ir	n the Norf g in the No	olk Vangua orfolk Vang	ard site, an uard site, a	d migratior and migrati	ns of birds ons of birc	from this s	SPA are is SPA are

- (e) Survey data show no evidence of Colne Estuary SPA feature (ringed plover) occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.
- (f) Breeding little tern has a maximum foraging range of 11km from colonies, so would have no connectivity with the Norfolk Vanguard site. Migrating little terns are considered to be 'extremely coastal on passage with very few sightings in open ocean or inland' (Forrester et al. 2007), so are unlikely to pass through the Norfolk Vanguard site.
- (g) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Colne Estuary SPA and Ramsar.





Site	31													
Name of European Site:	Copinsay SI	PA												
Distance to Norfolk Vanguard (km)	725													
Site Features	Likely ef	fect(s) of N	orfolk Van	guard										
	Collision	lision mortality Displacement/Disturbance Barrier Effect Cumulative/In-combination												
	с	0	D	С	0	D	С	0	D	С	0	D		
Breeding seabird assemblage including as named features fulmar, guillemot, kittiwake and great black-backed gull		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)		
 (a) Copinsay SPA is beyond maximigrating through the Norfol (b) The predicted effect attribute assessment for these feature 	k Vanguard able to Nor	l site are lik folk Vangu	ely to be v	ery small r	elative to	BDMPS.	_					Julations		





Site 3	2														
Name of European Site: C	oquet Island	I SPA													
Distance to Norfolk Vanguard (km) 3	66	ikely offect(s) of Norfolk Venguard													
Site Features	Likely ef	Likely effect(s) of Norfolk Vanguard													
	Collision	Collision mortality Displacement/Disturbance Barrier Effect Cumulative/In-combination													
	С	0	D	с	0	D	С	0	D	с	0	D			
Breeding roseate tern <i>Sterna dougallii,</i> Arctic tern, common tern, Sandwich tern		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)			
 (a) Coquet Island SPA is beyond Proportions of these popula (b) The predicted effect attribu assessment for these featur 	tions migrat table to Nor	ing through folk Vangua	n the Norfo ard is so sm	olk Vangua	rd site are	likely to be	e very smal	l relative t	o BDMPS.						





Site Name of European Site:	33 Cote D	e Granit	: Rose-Se	ept-lles SA	۸C										
Distance to Norfolk Vanguard (km)	583														
Site Features	Likely e	effect(s)	of Norfc	olk Vangu	ard										
	Underv	Likely effect(s) of Norfolk Vanguard Underwater noise Vessel Interactions Indirect effects on prey Changes to water quality													
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	and the	extent of	f any effe	ct on indi	viduals fr	om this s	ite would	result in	no poten	tial for LS	Е.





Site	34											
Name of European Site:	Cromarty Fir	th SPA & R	amsar									
Distance to Norfolk Vanguard (km)	664											
Site Features	Likely ef	fect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Dist	urbance	Barrier E	ffect		Cumulat	ive/In-con	nbination
	С	0	D	С	0	D	с	0	D	с	0	D
Wintering and passage waterbird assemblage including as named features curlew, dunlin, grey-lag goose Anser anser, pintail, red-breasted merganser, whooper swan, bar-tailed godwit, oystercatcher Haematopus ostralegus, wigeon, scaup Aythya marila, knot and redshank		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (d)	N (d)	N (d)
Breeding common tern		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (d)	N (d)	N (d)
Breeding osprey Pandion haliaetus		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)

(a) Survey data show little or no evidence of Cromarty Firth SPA features occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(b) SPA is beyond maximum foraging range of common tern (30km), and so has no breeding season connectivity. Numbers of SPA common tern migrating through the Norfolk Vanguard site are likely to be extremely small relative to BDMPS.

(c) Osprey has not been observed in the Norfolk Vanguard site, and it is improbable than any ospreys from the SPA migrate through the Norfolk Vanguard site.

(d) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Cromarty Firth SPA and Ramsar.





Site	35													
Name of European Site:	Crouch and F	Roach Estu	aries SPA 8	& Ramsar										
Distance to Norfolk Vanguard (km)	167													
Site Features	Likely et	ely effect(s) of Norfolk Vanguard Ilision mortality Displacement/Disturbance Barrier Effect Cumulative/In-combination												
	Collisior	n mortality		Displace	ement/Dist	urbance	Barrier	Effect		Cumula	tive/In-cor	nbination		
	С	0	D	С	0	D	С	0	D	С	0	D		
Nonbreeding brent goose		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)		
Nonbreeding hen harrier		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (c)	N (c)	N (c)		
(a) Survey data show little or	r no evidence o	of Crouch &	Roach Est	tuary SPA f	eature (br	ent goose)	occurring	in the Nor	folk Vangua	ard site, ar	nd migratic	ons of		

birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(b) Survey data show no evidence of Crouch & Roach Estuary SPA feature (hen harrier) occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Crouch & Roach Estuary SPA and Ramsar.





Site	36												
Name of European Site:	Deb	oen Estuar	y SPA & R	amsar									
Distance to Norfolk Vanguard (km)	107												
Site Features		Likely eff	ect(s) of N	Iorfolk Van	guard								
		Collision	mortality		Displace	ement/Dist	urbance	Barrier	Effect		Cumula	tive/In-co	mbinatior
		С	0	D	С	0	D	С	0	D	С	0	D
Nonbreeding dark-bellied brent goose Branta bernicla bernicla			N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Nonbreeding avocet			N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (c)	N (c)	N (c)
 (a) Survey data show little or no evide are likely to result in negligible nut (b) Survey data show no evidence of a (c) The predicted effect attributable to 	nber ivoce	rs passing ets occurri	through thin	ne Norfolk ' the Norfoll	Vanguard K Vanguar	site. d site, and	numbers n	nigrating t	hrough the	e site are lil	ely to be	negligible.	

(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Deben Estuary SPA and Ramsar.





Site	37												
Name of European Site:	Deng	ie SPA &	Ramsar										
Distance to Norfolk Vanguard (km)	155												
Site Features		Likely effe	ect(s) of N	orfolk Van	guard								
		Collision	mortality		Displace	ement/Dist	urbance	Barrier	Effect		Cumula	tive/In-coi	mbinatio
		с	0	D	С	0	D	С	0	D	С	0	D
Nonbreeding brent goose			N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Nonbreeding knot			N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Nonbreeding grey plover			N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Nonbreeding hen harrier			N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)

(b) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Dengie SPA and Ramsar.





Site Name of European Site:	38 Doggei	rbank SC	21												
Distance to Norfolk Vanguard (km)	281														
Site Features		effect(s) water no		olk Vangu Vessel I	ard nteractio	ins	Indirect	t effects o	on prey	Change quality	s to wate	r	In comb	oination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potential	impact i	range of	Norfolk	Vanguaro	d and the	extent of	any effe	ct on indi	ividuals fr	om this s	ite would	result in	no poten	tial for LS	Ε.





Site Name of European Site:	39 Dogge	rsbank S	5CI												
Distance to Norfolk Vanguard (km)	149														
Site Features	Likely	effect(s)	of Norfo	olk Vangu	ard										
	Under	water no	oise	Vessel I	Interactio	ons	Indirec	t effects	on prey	Change quality	s to wate	er	In comb	pination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)





Site	40												
Name of European Site:	Dorn	och Firth a	nd Loch Fl	eet SPA &	Ramsar								
Distance to Norfolk Vanguard (km)	669												
Site Features		Likely eff	ect(s) of N	orfolk Van	guard								
		Collision	mortality		Displace	ment/Distu	urbance	Barrier E	ffect		Cumulat	ive/In-com	bination
		С	0	D	с	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named feat curlew, dunlin, greylag goose, wigeo bar-tailed godwit, teal, oystercatche	n,		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Breeding osprey			N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)
 (a) Survey data show little SPA are likely to result (b) Osprey has not been of site. (c) The predicted effect at 	in negli oserveo	igible numl d in the No	oers passir rfolk Vang	ng through uard site, a	the Norfol nd it is imp	k Vanguar probable tl	d site. han any os	preys from	the SPA m	nigrate thro	ough the N	orfolk Van	

(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Dornoch Firth & Loch Fleet SPA & Ramsar.





Site Name of European Site: Distance to Norfolk Vanguard (km)	41 Dünen 399	landsch	aft Süd-S	Sylt SAC											
Site Features		ikely effect(s) of Norfolk Vanguard Inderwater noise Vessel Interactions Indirect effects on prey quality In combination													
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	l and the	extent of	any effe	ct on indi	viduals fr	om this s	ite would	result in	no poten	tial for LS	E.





Site			42															
Name of European Site:			Dunes D	e La Plai	ne Mari	time Flai	mande S	AC										
Distance to Norfolk Van	guard (km)	185															
Marine Mammals																		
Site Features	Likely e	effect(s)	of Norfo	olk Vangu	uard													
	Under	water no	oise	Vessel	Interact	ions	Indired prey	t effect	son	Change quality	es to wa	ter	In com	binatior	1			
	С	0	D	с	0	D	С	0	D	С	0	D	С	0	D			
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)			
Benthic Habitats		1	1	1	1	1	1	1	1	1			1	1	1			
Site Features	Perma	nent los	S	Tempo disturb	orary phy bance	/sical		ering du sed susp ent			obilisatio ninate d ents	n of	Under vibrati	water no on	oise and	In com	ibination	1
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Sandbanks which are slightly covered by sea water all the time	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)
Audflats and sandflats not covered by seawater t low tide	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)





t Caithness	s Cliffs SPA	1									
Likely eff	ect(s) of N	orfolk Van	guard								
Collision	mortality		Displace	ment/Dist	urbance	Barrier B	Effect		Cumula	tive/In-cor	nbinatio
С	0	D	с	0	D	С	0	D	С	0	D
	N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
	N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)
	Likely eff Collision C	Likely effect(s) of N Collision Tality C 0 N (a) N (a) N (b)	Likely effect(s) of Norfolk Vang Collision mortality C 0 D D N (a) N (a) N (b) N (b)	Likely effect(s) of Norfolk Varuation Collision	Likely effect(s) of Norfolk Varuers Collision portality Displacement/Dist C O O N (a) Image: Second sec	Likely effects) of Norfolk Variation Collision	Likely effects) of Norfolk Varuard Collision	Likely effects) of Nordel Value Collision vertality Displace-t/Disturate Barrier Effect C O D C O O O O Image: Collision vertality N(a) N(Likely effects of Norbel VariationCollision - vertalityDisplace-vert/DisturateBarrier EffectCODCODDN (a)N (b)N (b)N (b)N (b)N (b)N (b)N (b)	Likely effects) of Nordel Valuat Collision Taility Displacement/Disturance Barrier Effect Cumular C O D C O D C Sum Sum	Likely effects) of Norolla Vanada Collision Internet Vanada Collision Internet Vanada Displacement/Disturbance Barrier Effect Cumulation C O D C O D C O D N (a) N

(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at East Caithness Cliffs SPA.





Site Name of E	uropean	Site:		44 Essex E	stuaries	SAC												
Distance to	o Norfolk	(Vangua	rd (km)	114														
Site	Likely e	ffect(s) o	f Norfolk	Vanguaro	ł													
Features	Perma	nent loss	i	Tempo disturb	orary phy bance	sical		ering due sed suspe ent			obilisatior ninated ents	n of		water no bration	ise	In com	bination	
	С	0	D	с	0	D	С	0	D	С	0	D	С	0	D	с	0	D
Estuaries	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)
Mudflats and sandflats not covered by seawater at low tide	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)





Site Name of European Site:	45 Estuair	e De La	Canche,	Dunes Pi	cardes Pl	aquees S	ur L'ancie	enne Fala	ise, Fore	t D'harde	lot Et Fala	aise D'eq	uihen SA(C	
Distance to Norfolk Vanguard (km)	241														
Site Features	Likely e	effect(s)	of Norfo	olk Vangu	ard										
	Underv	kely effect(s) of Norfolk Vanguard nderwater noise Vessel Interactions Indirect effects on prey Changes to water quality													
	С	0	D	C	0	D	С	0	D	С	0	D	С	0	D
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	l and the	extent of	f any effe	ct on indi	viduals fr	om this s	ite would	result in	no poten	tial for LS	iΕ.





Site Name of European Site:	46 Estuair	e de la S	Seine SC	21											
Distance to Norfolk Vanguard (km)	394														
Site Features	Likely e	effect(s)	of Norfo	olk Vangu	ard										
	Underv	water no	oise	Vessel I	nteractio	ons	Indirect	effects o	on prey	Change quality	s to wate	er	In comb	oination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact ı	range of	Norfolk	Vanguaro	and the	extent of	f any effe	ct on indi	viduals fr	om this s	ite would	result in	no poten	tial for LS	E.





Site				47	,																
Name of	Europea	n Site:		Es	tuaires	et littor	al picar	ds (baie	s de Sor	nme e	t d'Autl	nie) SAC									
Distance	to Norfo	olk Van	guard (k	(m) 27	'5																
Marine N	lammal	5																			
Site Featu	ires	L	ikely eff.	ect(s) of	Norfoll	< Vangu	ard														
		ι	Inderwa	ter nois	e	Ve	ssel Int	eraction	s	In	direct e	ffects on	prey	Cha	nges to	water q	uality	In co	mbinati	on	
		C	2	0	D	С		0	D	С		0	D	С	0		D	С	0	1	D
Harbour p	orpoise	٩	N (a)	N (a)	N (a)	N	(a)	N (a)	N (a)	N	(a)	N (a)	N (a)	N (a)		N (a)	N (a)	N (a) I	N (a)
Harbour s	eal	٩	N (a)	N (a)	N (a)	N	(a)	N (a)	N (a)	N	(a)	N (a)	N (a)	N (a)		N (a)	N (a)	N (a) I	N (a)
Fish													1								
Site	Likely	effect(s	s) of Nor	folk Van	guard																
Features	Perma loss	inent h	abitat	Tempo disturt	orary pł bance	nysical	Smoth increa suspe sedim	nded	ue to		nobilisa aminate nents			water r bration	ioise	Electr fields	omagne (EMF)	tic	In con	nbinatio	n
	С	0	D	С	0	D	с	0	D	С	0	D	С	0	D	с	0	D	с	0	D
River lamprey	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)
-	Γhe dista _SE.	ince be	tween t	he poter	ntial imp	bact ran	ge of N	orfolk V	anguard	and t	ne exte	nt of any	effect o	n indivi	duals fr	om this	site wou	ıld resul	lt in no j	ootentia	l for





Site 48												
Name of European Site: Ex	e Estuary S	PA & Rams	sar									
Distance to Norfolk Vanguard (km) 47	0											
Site Features	Likely ef	fect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Distu	urbance	Barrier E	ffect		Cumulat	ive/In-com	nbination
	С	0	D	С	0	D	С	0	D	С	0	D
Migratory waterbird assemblage including as named features brent goose, dunlin, oystercatcher, black-tailed godwit, grey plover, Slavonian grebe <i>Podiceps auritus</i> , avocet		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
 (a) Survey data show little or no evider result in negligible numbers passing (b) The predicted effect attributable to these features at Exe Estuary SPA & 	through th Norfolk Va	ne Norfolk V	Vanguard s	site.		-		-				





Site	49												
Name of European Site:	Fai	r Isle SPA											
Distance to Norfolk Vanguard (km) 762	2											
Site Features		Likely eff	ect(s) of N	orfolk Van	guard								
		Collision	mortality		Displace	ment/Distu	urbance	Barrier E	ffect		Cumulat	ive/In-con	nbinatio
		С	0	D	с	0	D	С	0	D	С	0	D
Breeding seabird assemblage includ named features Arctic skua Stercord parasiticus, fulmar, gannet, great sl Stercorarius skua, puffin, razorbill, tern, guillemot, kittiwake, shag	arius kua		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Fair Isle wren			N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)
 (a) Fair Isle SPA is beyond maximigrating through the Norfo (b) Fair Isle wren is a resident SI (c) The predicted effect attribute 	lk Vangu netland s	uard site ar subspecies	e likely to that is tho	be very sm ought never	all relative to leave t	e to BDMPS he island.	5.		·				

(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Fair Isle SPA.





Site	0											
	alaise du B	essin Occid	ental SPA									
Distance to Norfolk Vanguard (km)	45											
Site Features	Likely e	ffect(s) of N	Iorfolk Van	guard								
	Collisio	n mortality		Displace	ement/Dist	urbance	Barrier I	Effect		Cumula	tive/In-cor	nbination
	с	0	D	С	0	D	С	0	D	С	0	D
Breeding kittiwake, herring gull, lesser black-backed gull, fulmar		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (g)	N (g)	N (g)
Nonbreeding red-throated diver		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (g)	N (g)	N (g)
Nonbreeding cormorant, shag, red- breasted merganser		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (g)	N (g)	N (g)
Nonbreeding guillemot, razorbill		N (d)		N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (g)	N (g)	N (g)
Nonbreeding peregrine, short-eared owl Asio flammeus		N (e)		N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (g)	N (g)	N (g)
Breeding Dartford warbler Sylvia undata		N (f)		N (f)	N (f)	N (f)	N (f)	N (f)	N (f)	N (f)	N (f)	N (f)

(a) Falaise du Bessin Occidental SPA is far beyond maximum foraging range of designated seabird species so has no breeding season connectivity. Proportions of these populations migrating through the Norfolk Vanguard site are likely to be extremely small relative to BDMPS, as these species are likely to migrate into the Atlantic rather than northwards into the North Sea in autumn, and are unlikely to pass through the North Sea in spring.

- (b) Nonbreeding red-throated divers at this SPA are likely to include birds from Scandinavia and the UK, especially juveniles which winter further south than adults. Their migrations between breeding grounds and the SPA probably take most individuals along the continental coast of Europe rather than across the North Sea. Small numbers may cross the North Sea towards the UK or Icelandic breeding grounds. However, red-throated divers tend to fly low over the sea so will be at very low risk of collision. Red-throated divers strongly avoid disturbance and offshore wind farms and so may have to fly further by flying around the Norfolk Vanguard site rather than through the wind farm. However, in the context of a migration of over 1000km, the extra distance flown to pass an offshore wind farm represents a negligible increase in energy expenditure for the very few individuals that might be affected.
- (c) Cormorants, shags and red-breasted mergansers do not normally occur at the Norfolk Vanguard site based on bird survey data. Furthermore, these species tend to fly low over the sea and so would be at negligible risk of collision, and do not show displacement or barrier effects. Indeed, cormorants seem to benefit from offshore wind farm structures permitting them to extend foraging range offshore, and the same may be true for shag and red-breasted merganser which may also benefit from foraging opportunities around turbine bases.





Emaneng Society Together												
Site	50											
Name of European Site:	Falaise du Be	ssin Occide	ental SPA									
Distance to Norfolk Vanguard (km)	445											
Site Features	Likely ef	fect(s) of N	lorfolk Van	guard								
	Collision	mortality		Displacer	nent/Distu	irbance	Barrier E	ffect		Cumulat	ive/In-com	bination
	С	0	D	с	0	D	с	0	D	с	0	D
 (d) Nonbreeding guillemots and razo and may fly around rather than the Norfolk Vanguard site towards bre negligible in relation to the wider through the wind farm would be (e) Peregrines in western Europe do are more migratory, and sometime SPA passing through the Norfolk Vanguard site towards are specified effect attributable (f) Dartford warbler is a resident specified effect attributable 	nrough offshord eeding areas fu area of the No negligible in re not normally m hes cross the No Vanguard site a ccies that is unl	e wind farm arther north orth Sea and lation to a n nigrate, so v orth Sea, b are extreme ikely to mo	ns. A very s h, but the a d Channel o migration o would be e ut since thi ely small. we from th	mall propo area of fora over which listance of xtremely u s SPA is 44 is SPA.	ortion of the riging habits they forag hundreds o nlikely to r 5km from	e guillemc at lost to t e, and the of kilomet nove betw the Norfol	ots and razo hese birds increase ir res. veen this SF k Vanguaro	orbills from if they avo n migration PA and the d site, the o	h this SPA r id the Nor distance t Norfolk Va chances of	night migr folk Vangu to fly arou anguard si a short-ea	ate throug Jard site wo nd rather t te. Short-e	h the ould be han ared owls





Site	51																	
Name of European Site:	Falaise	es du Cra	in aux O	eufs et d	u Cap G	ris-Nez,	Dunes d	u Chatel	et, Mara	ais de Ta	rdingher	n et Dun	es de W	issant S	AC			
Distance to Norfolk Vanguard (km)	217																	
Marine Mammals																		
Site Features	Likely	effect(s)	of Norfo	olk Vangu	uard													
	Under	water no	oise	Vessel	Interact	tions	Indired prey	t effects	s on	Change quality	es to wa /	ter	In com	binatior	ı			
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D			
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)			
Harbour (common) seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)	-		
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)	-		
Benthic Habitats					1		1	1	1					1	1			
Site Features	Perma	nent los	S	Tempo disturt	orary phy bance	/sical		ering du sed susp ent			obilisatio ninate d ents	n of	Under vibrati		oise and	In com	binatior	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Sandbanks which are slightly covered by sea water all the time	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)
Mudflats and sandflats not covered by seawater at low tide	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)
Reefs	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)

HRA Screening Matrices

Norfolk Vanguard Offshore Wind Farm





Site	51
Name of European Site:	Falaises du Cran aux Oeufs et du Cap Gris-Nez, Dunes du Chatelet, Marais de Tardinghen et Dunes de Wissant SAC
Distance to Norfolk Vanguard (km)	217
a) The distance betwee	en the potential impact range of Norfolk Vanguard and the extent of any effect on individuals from this site would result in no potential for LSE.

b) The distance between the offshore project area and the designated site is beyond the range of any potential LSE.

Site Name of Europea Distance to Norfo		uard (km	۱)	52 Falaises 212	et Pelou	uses du C	Cap Bland	: Nez, du	Mont d	'Hubert,	des Noir	es Mott	es, du Fo	nd de la	Forge et	t du Mon	t de cou	ple SAC
Site Features	Likely e	effect(s)	of Norfo	lk Vangu	ard													
	Perma	anent los	55	Temp distur	orary ph bance	ysical	Smoth increa suspe sedim	nded	ue to		obilisatic minated ents	on of	0	water n bration	oise	In con	nbinatior	١
	С	0	D	с	0	D	с	0	D	с	0	D	с	0	D	С	0	D
Mudflats and sandflats not covered by seawater at low tide	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)
Reefs	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)





Site Name of European Site:	53 Faray a	and Holr	n of Fara	iy SAC											
Distance to Norfolk Vanguard (km)	762														
Site Features	· · · ·	. ,		lk Vangu			1			1					
	Underv	water no	oise	Vessel I	nteractio	ns	Indirect	t effects o	on prey	Change quality	s to wate	r	In comb	bination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	and the	extent of	f any effe	ct on indi	viduals fr	om this s	ite would	result in	no poten	tial for LS	E.

Site	54											
Name of European Site:	Farne Isla	nds SPA										
Distance to Norfolk Vanguard (km)	393											
Site Features	Likely e	effect(s) of N	Iorfolk Van	guard								
	Collisio	on mortality		Displace	ement/Dist	urbance	Barrier	Effect		Cumula	tive/In-cor	nbination
	С	0	D	С	0	D	С	0	D	С	0	D
Breeding Arctic tern, common tern, Sandwich tern		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
 (a) Farne Islands SPA is beyond maxim populations migrating through the (b) The predicted effect attributable to these features at Farne Islands SPA 	Norfolk Va o Norfolk V	inguard site	are likely t	o be very s	mall relati	ve to BDM	PS.			·		ient for





Site 55												
Name of European Site: Fe	tlar SPA											
Distance to Norfolk Vanguard (km) 85	9											
Site Features	Likely ef	fect(s) of N	lorfolk Van	guard								
	Collision	mortality		Displace	ement/Dist	urbance	Barrier	Effect		Cumula	tive/In-cor	nbination
	С	0	D	С	0	D	С	0	D	С	0	D
Breeding seabird assemblage including as named features Arctic skua, fulmar, great skua, Arctic tern		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Breeding dunlin, whimbrel Numenius phaeopus, red-necked phalarope Phalaropus lobatus		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)
 (a) Fetlar SPA is beyond the maximum fo migrating through the Norfolk Vangua (b) Dunlin, whimbrel and red-necked pha been tracked by geolocator and migra Dunlin and whimbrel from Fetlar SPA (c) The predicted effect attributable to N these features at Fetlar SPA. 	ard site are larope hav ite from Sh migrate so	small relate e not beer etland to t uth, but ar	tive to BDN observed the Pacific (re unlikely t	APS. migrating Ocean via to pass the	through t Iceland, G rough the	he Norfolk reenland a Norfolk Va	Vanguard nd Canada nguard site	site. Red-r a, and so w	necked pha ould not p	llaropes fro ass near to	om Fetlar S Norfolk V	SPA have anguard.





Site 5	56													
Name of European Site: F	Firth of Forth SPA & Ramsar 463													
Distance to Norfolk Vanguard (km) 4														
Site Features	Likely effect(s) of Norfolk Vanguard													
	Collision	mortality		Displace	ment/Dist	urbance	Barrier E	ffect		Cumula	tive/In-cor	nbinatior		
	с	0	D	С	0	D	С	0	D	С	0	D		
Wintering and passage waterbird assemblage including as named features curlew, dunlin, goldeneye, great crested grebe, knot, lapwing, mallard <i>Anas</i> <i>platyrhynchos</i> , pink-footed goose <i>Anser</i> <i>brachyrhynchus</i> , red-breasted merganser, ringed plover, Sandwich tern, Slavonian grebe, turnstone, wigeon, common scoter <i>Melanitta nigra</i> , golden plover, long- tailed duck <i>Clangula hyemalis</i> , redshank, shelduck, bar-tailed godwit, cormorant, eider <i>Somateria mollissima</i> , grey plover, oystercatcher, red-throated diver, scaup,		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)		





Site 5	7													
Name of European Site: F	irth of Tay &	Eden Estu	ary SPA &	Ramsar										
Distance to Norfolk Vanguard (km) 503														
Site Features	Likely ef	ikely effect(s) of Norfolk Vanguard												
	Collision	mortality		Displace	ment/Distu	urbance	Barrier E	ffect		Cumulative/In-combination				
	С	0	D	с	0	D	с	0	D	С	0	D		
Wintering and passage waterbird assemblage including as named features common scoter, cormorant, eider, goosander <i>Mergus merganser</i> , grey plover, long-tailed duck, red-breasted merganser, sanderling, velvet scoter, dunlin, greylag goose, redshank, oystercatcher, bar-tailed godwit, goldeneye, Icelandic black-tailed godwit <i>Limosa limosa islandica</i> , pink-footed goose		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (d)	N (d)	N (d)		
Breeding marsh harrier		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		
Breeding little tern		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)		

(a) Survey data show little or no evidence of Firth of Tay & Eden Estuary SPA features occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(b) Marsh harrier is a migrant species. Satellite tracking suggests that marsh harriers from Scotland migrate overland to the south coast of England and over the Channel to France, rather than across the North Sea, and so are unlikely to pass through the Norfolk Vanguard site.

(c) Breeding little tern has a maximum foraging range of 11km from colonies, so would have no connectivity with the Norfolk Vanguard site. Migrating little terns are considered to be 'extremely coastal on passage with very few sightings in open ocean or inland' (Forrester et al. 2007), so are unlikely to pass through the Norfolk Vanguard site.

(d) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Firth of Tay & Eden Estuary SPA & Ramsar.





Site	58	58												
Name of European Site:	e of European Site: Flamborough and Filey Coast pSPA													
Distance to Norfolk Vanguard (km)	205	205												
Site Features	Likely effect(s) of Norfolk Vanguard													
		Collision	mortality		Displace	ement/Dist	urbance	Barrier I	Effect		Cumula	tive/In-cor	nbination	
		С	0	D	С	0	D	С	0	D	С	0	D	
Breeding kittiwake			Y (a)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (c)	Y (a)	N (c)	
Breeding gannet			Y (a)		N (g)	Y (d)	N (g)	N (e)	N (e)	N (e)	N (c)	Y (a)	N (c)	
Breeding common guillemot			N (f)		N (g)	Y (h)	N (g)	N (g)	N (i)	N (g)	N (c)	Y (h)	N (c)	
Breeding razorbill			N (f)		N (g)	Y (h)	N (g)	N (g)	N (i)	N (g)	N (c)	Y (h)	N (c)	
Breeding puffin			N (f)		N (g)	Y (h)	N (g)	N (g)	N (i)	N (g)	N (c)	Y (h)	N (c)	

(a) Band model estimates of collision mortality indicate that LSE cannot be ruled out at the Screening stage.

(b) Kittiwakes are not considered to be at risk of disturbance and displacement or barrier effects at offshore wind farms therefore LSE can be ruled out.

(c) The predicted effect attributable to the proposed Norfolk Vanguard project is so small that it would not significantly contribute to or alter the overall incombination assessment for these features at Flamborough and Filey Coast SPA.

- (d) Flamborough and Filey Coast SPA is 205km from Norfolk Vanguard. Thaxter et al. (2012) report a mean foraging range of breeding gannets as 92.5km, and a maximum recorded distance of 590km. Norfolk Vanguard is therefore considerably beyond the mean foraging range of breeding gannets, but within their maximum range. Breeding gannets from Flamborough & Filey Coast SPA may therefore be affected by displacement. Searle et al. (2014) found that even for offshore wind farms considerably closer to a gannet breeding colony than under consideration here, impacts of displacement were negligible for this species because of its very long foraging range and large area used for foraging. Similarly, impacts of displacement during migration are considered likely to be negligible. Nonetheless, Natural England consider that an LSE cannot be ruled out at the Screening stage.
- (e) Gannets are not considered at risk of barrier effects due to their wide ranging habits (see d), and migrating gannets cover very large distances, extending from the North Sea to West Africa, so that slight local effects would be negligible in the context of their large migrations and area use, therefore LSE can be ruled out.
- (f) Common guillemots, razorbills and puffins tend to fly low over the sea so have a very low risk of collision mortality, therefore LSE can be ruled out.
- (g) Construction and decommissioning impacts are temporary and localised therefore LSE can be ruled out.
- (h) Flamborough and Filey Coast SPA is 205km from Norfolk Vanguard. Thaxter et al. (2012) report a mean foraging range of breeding common guillemots as 37.8km, and a maximum recorded distance of 135km. Thaxter et al. (2012) report a mean foraging range of breeding razorbills as 23.7km, and a maximum recorded distance of 95km. Thaxter et al. (2012) report a mean foraging range of breeding puffin as 4km, and a maximum recorded distance of 200km. Norfolk Vanguard is therefore considerably beyond the normal foraging range of these species from Flamborough and Filey Coast SPA. It is therefore unlikely that any breeding adults from Flamborough and Filey Coast SPA will be present at Norfolk Vanguard during the breeding season. During the nonbreeding season, birds from Flamborough





Site	58
Name of European Site:	Flamborough and Filey Coast pSPA
Distance to Norfolk Vanguard (km)	205
 mortality generates a negligible in Screening stage. (i) Since Norfolk Vanguard is beyond will be no breeding season barrie with the large BDMPS population 	be mixed with the large BDMPS populations of these species so that apportioning of the impact of the low level of displacement mpact to Flamborough and Filey Coast SPA. Nonetheless, Natural England consider that an LSE cannot be ruled out at the d the normal foraging range of breeding common guillemots, razorbills and puffins from Flamborough and Filey Coast SPA, there er impact for those populations. During the nonbreeding period birds from Flamborough and Filey Coast SPA are likely to be mixed to f these species so that apportioning of the impact of the low level of displacement to this very large BDMPS population Flamborough and Filey Coast SPA.

ean Site	e:		59 Flambo	orough He	ead SAC												
e to Norfolk Vanguard (km) ¹⁹⁹																	
Likely effect(s) of Norfolk Vanguard																	
Permanent loss			-						contar	ninated	n of	Underwater noise and vibration			In combination		
	0	D	С	0	D	С	0	D	С	0	D	с	0	D	с	0	D
N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)
rf	folk Va kely eff erman	kely effect(s) of ermanent loss O	folk Vanguard (km) kely effect(s) of Norfolk ermanent loss	folk Vanguard (km) 199 kely effect(s) of Norfolk Vanguar ermanent loss Tempo disturk	folk Vanguard (km) 199 kely effect(s) of Norfolk Vanguard ermanent loss Temporary phy disturbance O D C O	199 kely effect(s) of Norfolk Vanguard Temporary physical disturbance 0 D C O	folk Vanguard (km) kely effect(s) of Norfolk Vanguard ermanent loss 0 D C O D C	folk Vanguard (km) 199 Kely effect(s) of Norfolk Vanguard ermanent loss Temporary physical disturbance Smothering du increased susp sediment O D C O D C O	folk Vanguard (km) 199 kely effect(s) of Norfolk Vanguard ermanent loss Temporary physical disturbance Smothering due to increased suspended sediment 0 D C O D C O D C O D	folk Vanguard (km) 199 Kely effect(s) of Norfolk Vanguard ermanent loss Temporary physical disturbance Temporary physical disturbance O D C D C	folk Vanguard (km) 199 Kely effect(s) of Norfolk Vanguard ermanent loss Temporary physical disturbance Temporary physical disturbance C O D C D C	Temporary physical disturbance Smothering due to increased suspended sediments O D C D C D C D C D C D C D	199 Kely effect(s) of Norfolk Vanguard ermanent loss Temporary physical disturbance Smothering due to increased suspended sediments Re- mobilisation of contaminated and vi sediments Under and vi sediments 0 D C 0 D C 0 D C 0 D C	folk Vanguard (km) 199 kely effect(s) of Norfolk Vanguard ermanent loss Temporary physical disturbance Temporary physical contaminated sediment Re- mobilisation of contaminated sediments Underwater no and vibration and vibration of contaminated sediments C O D C D C	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	folk Vanguard (km) 199 kely effect(s) of Norfolk Vanguard ermanent loss Temporary physical disturbance Smothering due to increased suspended sediment Re- mobilisation of contaminated sediments Underwater noise and vibration In com and vibr	199 Kely effect(s) of Norfolk Vanguard remporary physical disturbance Smothering due to increased suspended sediments Re-mobilisation of contaminated sediments Underwater noise and vibration 0 D C 0 D C 0 D C 0 D C 0





Site 60	60													
Name of European Site: Fo	Forth Islands SPA													
Distance to Norfolk Vanguard (km) 471														
Site Features	Likely eff	Likely effect(s) of Norfolk Vanguard												
	Collision	mortality		Displace	ment/Distu	urbance	Barrier E	ffect		Cumulative/In-combination				
	с	0	D	С	0	D	с	0	D	С	0	D		
Breeding seabird assemblage including as named features gannet, kittiwake, lesser black-backed gull, roseate tern, Sandwich tern, guillemot, razorbill, fulmar, common tern, Arctic tern, cormorant, herring gull, puffin, shag		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)		
 (a) Forth Islands SPA is beyond maximu migrating through the Norfolk Vang (b) The predicted effect attributable to these features at Forth Islands SPA. 	uard site ar	e small rel	ative to BD	MPS.			-							





Site	1											
Name of European Site:	oula SPA											
Distance to Norfolk Vanguard (km) 8	33											
Site Features	Likely ef	fect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Distu	urbance	Barrier E	ffect		Cumulat	ive/In-con	bination
	С	0	D	С	0	D	С	0	D	С	0	D
Breeding seabird assemblage including as named features Arctic tern, fulmar, guillemot, razorbill, red-throated diver, Arctic skua, kittiwake, shag, Leach's storm-petrel Oceanodroma leucorhoa, great skua, puffin		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
 (a) Foula SPA is beyond maximum for through the Norfolk Vanguard site (b) The predicted effect attributable t these features at Foula SPA. 	are small re	lative to B	OMPS.			-			-			





Site	62											
Name of European Site:	Foulnes	SPA and Ram	sar									
Distance to Norfolk Vanguard (km)	158											
Site Features	Like	ely effect(s) of I	Norfolk Var	nguard								
	Col	lision mortality		Displace	ement/Dist	urbance	Barrier B	Effect		Cumulat	ive/In-con	nbination
	С	0	D	С	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named feature brent goose, knot, oystercatcher, bar- tailed godwit, grey plover, avocet, redshank	s	N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (e)	N (e)	N (e)
Nonbreeding hen harrier		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (e)	N (e)	N (e)
Breeding ringed plover, avocet		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)
Breeding little tern, common tern, Sandwich tern		N (d)		N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (d)

(a) Survey data show little or no evidence of Foulness SPA features occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site during migration.

(b) Survey data show no evidence of hen harrier occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site during migration, as the species is likely to migrate overland rather than over sea where the option is available.

(c) Ringed plover and avocet have not been observed during bird site-specific surveys. It is highly unlikely that these birds would migrate through the Norfolk Vanguard site as their migration is likely to take a coastal route and cross sea at narrow points such as The English Channel. If they did migrate through the Norfolk Vanguard site their flight height is likely not to be at collision risk height.

(d) Little tern, common tern and Sandwich tern have maximum foraging ranges from colonies of 11km, 30km and 54km respectively, so there is no connectivity between the SPA and Norfolk Vanguard site. Furthermore, these species tend to forage in coastal waters rather than offshore. Therefore, collision risk, displacement and barrier effects can be excluded.

(e) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Foulness SPA and Ramsar.





Site 6	3											
Name of European Site: F	owlsheugh	SPA										
Distance to Norfolk Vanguard (km) 5	25											
Site Features	Likely e	ffect(s) of N	lorfolk Van	guard								
	Collisio	n mortality		Displace	ment/Dist	urbance	Barrier E	ffect		Cumula	tive/In-cor	nbination
	С	0	D	С	0	D	С	0	D	С	0	D
Breeding seabird assemblage including as named features fulmar, guillemot, kittiwake, razorbill, herring gull		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
 (a) Fowlsheugh SPA is beyond maximumigrating through the Norfolk Van (b) The predicted effect attributable t these features at Fowlsheugh SPA. 	guard site o Norfolk V	are likely to	be very sn	nall relative	e to BDMP	S.	2					





Site 6	1											
Name of European Site: Fi	isian Front	pSPA										
Distance to Norfolk Vanguard (km) ca	. 100km*											
Site Features	Likely ef	fect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Dist	urbance	Barrier E	ffect		Cumulat	ive/In-con	nbination
	С	0	D	С	0	D	С	0	D	С	0	D
Nonbreeding common guillemot, great skua, great black-backed gull, lesser black backed gull		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
 *Distance from the Norfolk Vanguard site (a) Migrations of birds from this pSPA BDMPS regional populations. (b) The predicted effect attributable to 	are likely to	result in n	egligible n	umbers pa	ssing throu	ugh the No	rfolk Vang	uard site di				

these features at Frisian Front pSPA.





Site	65														
Name of European Site:	Gibral	ltar Poin	t SPA and	Ramsar											
Distance to Norfolk Vanguard (km)	133														
Site Features	L	ikely eff	ect(s) of N	orfolk Van	guard										
	С	Collision	ffect(s) of Norfolk Vanguard n mortality Displacement/Disturbance Barrier Effect Cumulative/In-combination 0 0 0 0 0 0 0												
	С	2	0	D	С	0	D	С	0	D	С	0	D		
Nonbreeding sanderling, bar-tailed godwit, grey plover			N (a)		N (a)	N (c)	N (c)	N (c)							
Breeding little tern			N (b)		N (b)	N (b)	N (b)								
(a) Survey data show no evidence of birds from this SPA are likely				-	-	-		-	-		Vanguard	site, and m	nigrations		

(b) Breeding little tern has a maximum foraging range of 11km (Thaxter et al. 2012) from colonies, so would have no connectivity with the Norfolk Vanguard site. Migrating little terns are considered to be 'extremely coastal on passage with very few sightings in open ocean or inland' (Forrester et al. 2007), so are unlikely to pass through the Norfolk Vanguard site.

(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Gibraltar Point SPA and Ramsar.





Site	66														
Name of European Site:	Great Y	armou	th and No	rth Denes	SPA										
Distance to Norfolk Vanguard (km)	49														
Site Features	Lik	ely effe	ect(s) of N	orfolk Van	guard										
	Col	ely effect(s) of Norfolk Vanguard Ilision mortality Displacement/Disturbance Barrier Effect Cumulative/In-combinate Q D C Q D C Q D													
	С		0	D	С	0	D	С	0	D	С	0	D		
Breeding little tern			N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)		
 (a) Great Yarmouth & North Denes S connectivity. Proportions of this p during much of its migration thro (b) The predicted effect attributable these features at Great Yarmouth 	opulation ugh UK w to Norfoll	n migra aters. « Vang	ating throu uard is so	ugh the No	rfolk Vang	uard site a	re likely to	be small a	s the speci	es is thoug	ght to rema	ain close to	o shore		





Site	67												
Name of European Site:	Gre	ater Wash	SPA										
Distance to Norfolk Vanguard (km)	ca.	36km*											
Site Features		Likely eff	ect(s) of N	orfolk Vang	guard								
		Collision	mortality		Displace	ment/Distu	urbance	Barrier E	ffect		Cumulati	ive/In-com	bination
		С	0	D	С	0	D	С	0	D	С	0	D
Breeding seabirds (little tern, common tern, Sandwich tern)			N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)
Nonbreeding red-throated diver			N (b)		Y (c)	Y (i)	N (d)	N (b)	N (b)	N (b)	Y (c)	Y (i)	N (h)
Nonbreeding little gull			Y (e)		N (f)	N (f)	N (f)	N (f)	N (f)	N (f)	N (h)	Y (e)	N (h)
Nonbreeding common scoter			N (g)		N (g)	N (g)	N (g)	N (g)	N (g)	N (g)	N (h)	N (h)	N (h)
							-						

*Note that this distance refers to the Norfolk Vanguard site. The export cable will pass through the SPA.

(a) Little tern, common tern and Sandwich tern have maximum foraging ranges from colonies of 11km, 30km and 54km respectively, which suggests potential connectivity between the SPA and the Norfolk Vanguard site. However, the tern colonies are at locations along the Norfolk coast which are beyond these foraging distances from the Norfolk Vanguard site. Therefore, connectivity between the SPA and Norfolk Vanguard site is ruled out on the basis of distance. Furthermore, these species tend to forage in coastal waters rather than offshore. Hence, collision risk, displacement and barrier effects can be excluded.

(b) Red-throated divers fly close to the sea surface and are therefore at extremely low risk of collisions or barrier effects.

(c) LSE cannot be ruled out at screening for impacts of Displacement/Disturbance to nonbreeding red-throated divers as a result of construction work (specifically for export cable laying operations through part of the Greater Wash SPA).

(d) Displacement/Disturbance of red-throated diver during operation and decommissioning is considered negligible as the increase in vessel traffic within the SPA due to Norfolk Vanguard will be negligible compared to the current baseline.

- (e) There is potential for little gull connectivity between the SPA and the Norfolk Vanguard site, therefore LSE cannot be ruled out at screening for collision risk impacts to nonbreeding little gull.
- (f) Displacement of little gulls by offshore wind farms appears to be negligible**, indicating no LSE for this SPA feature as a consequence of displacement or barrier effects.
- (g) Surveys found no common scoters in the Norfolk Vanguard site since this species favours waters <20m in depth. Common scoter was also only present at very low densities along the export cable route, therefore no LSE for this SPA feature is predicted.
- (h) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Greater Wash pSPA.





- (i) Following advice from Natural England it is considered that Operations and Maintenance vessels may disturb red-throated divers whilst transiting through the SPA therefore an LSE cannot be screened out.
- ** Dierschke, V., Furness, R.W. and Garthe, S. 2016. Seabirds and offshore wind farms in European waters: Avoidance and attraction. Biological Conservation 202, 59-

^{68.}

Site Name of European Site:	68 Gule R	ev SCI													
Distance to Norfolk Vanguard (km)	571														
Site Features	Likely e	effect(s)	of Norfo	olk Vangu	ard										
	Underv	water no	oise	Vessel I	nteractic	ons	Indirect	t effects o	on prey	Change quality	s to wate	r	In comb	oination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact ı	range of	Norfolk	Vanguaro	and the	extent of	f any effe	ct on ind	ividuals fr	om this s	ite would	result in	no poten	tial for LS	je.





Site Name of Eu Distance to			d (km)	69 Haisbo 0	rough, Ha	ammond	and Win	terton SA	ſĊ									
Site	Likely e	ffect(s) o	f Norfolk	Vanguar	d													
Features		nent troductic ediment	on of	Tempo disturb	orary phy bance	sical		ering du sed susp ent			obilisation ninated ents	n of		water no bration	ise	In com	bination	
	С	0	D	С	0	D	с	0	D	С	0	D	С	0	D	С	0	D
Sandbanks which are slightly covered by sea water all the time	Y (a)	Y (a)	Y (a)	Y (a)	Y (a)	Y (a)	Y (a)	Y (a)	Y (a)	Y (a)		Y (a)	Y (a)		Y (a)	Y (a)	Y (a)	Y (a
Reefs	Y (a)	Y (a)	Y (a)	Y (a)	Y (a)	Y (a)	Y (a)	Y (a)	Y (a)	Y (a)		Y (a)	Y (a)		Y (a)	Y (a)	Y (a)	Y (a





Site Name of European Site:	70 Hambı	urgische	s Watter	nmeer SCI	I										
Distance to Norfolk Vanguard (km)	361														
Site Features	Likely														
	Under	lerwater noise Vessel Interactions Indirect effects on prey Changes to water quality In combination													
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	d and the	extent of	any effe	ct on ind	ividuals fr	om this s	ite would	result in	no poten	tial for LS	E.





Site	71											
Name of European Site:	Hamford W	ater SPA an	d Ramsar									
Distance to Norfolk Vanguard (km)	127											
Site Features	Likely e	ffect(s) of I	Norfolk Var	nguard								
	Collisio	n mortality		Displace	ement/Dist	urbance	Barrier	Effect		Cumula	tive/In-cor	mbination
	С	0	D	С	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named features teal, brent goose, ringed plover, black- tailed godwit, grey plover, avocet, shelduck, redshank		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Breeding little tern		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)

(b) Breeding little tern has a maximum foraging range of 11km from colonies, so would have no connectivity with the Norfolk Vanguard site. Migrating little terns are considered to be 'extremely coastal on passage with very few sightings in open ocean or inland' (Forrester et al. 2007), so are unlikely to pass through the Norfolk Vanguard site.

(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Hamford Water SPA and Ramsar.





Site Name of European Site:	72 Helgol	and mit	Helgolar	nder Felss	ockel SA	с									
Distance to Norfolk Vanguard (km)	343														
Site Features	· · ·	ely effect(s) of Norfolk Vanguard derwater noise Vessel Interactions Indirect effects on prey Changes to water In combination quality													
	С	quality													
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Grey seal a) The distance between the potentia	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	ite would	N(a)	N(a)	N(a)	N(a)





Site	'3											
Name of European Site:	lermaness, S	axa Vord a	ind Valla Fi	eld SPA								
Distance to Norfolk Vanguard (km) 8	81											
Site Features	Likely ef	fect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Distu	urbance	Barrier E	ffect		Cumulat	ive/In-com	bination
	С	0	D	С	0	D	С	0	D	С	0	D
Breeding seabird assemblage including as named features gannet, guillemot, red- throated diver, puffin, fulmar, kittiwake, great skua, shag	5	N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
 (a) Hermaness, Saxa Vord & Valla Field of these populations migrating thro (b) The predicted effect attributable to these features at Hermaness, Saxa V 	ugh the Norf Norfolk Van	olk Vangua guard is so	ard site are	likely to b	e very sma	ll relative t	o BDMPS.		_		-	-





Site	74											
Name of European Site:	Hornsea Mo	ere SPA										
Distance to Norfolk Vanguard (km)	197											
Site Features	Likely e	effect(s) of N	Norfolk Var	nguard								
	Collisio	n mortality		Displace	ement/Dis	turbance	Barrier	Effect		Cumula	tive/In-cor	nbination
	С	0	D	с	0	D	С	0	D	С	0	D
Nonbreeding gadwall, mute swan		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
(a) Survey data show no evidence are likely to result in negligible	numbers pass	ing through	the Norfol	k Vanguar	d site.	•		-	-	-		
(b) The predicted effect attributab	le to Norfolk \	/anguard is	so small th	at it would	d not signif	icantly con	itribute to	or alter the	overall in	-combinat	ion assess	ment for
these features at Hornsea Mere	e SPA.											





Site 75												
Name of European Site: He	by SPA											
Distance to Norfolk Vanguard (km) 73	3											
Site Features	Likely ef	fect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Dist	urbance	Barrier E	ffect		Cumula	tive/In-cor	nbination
	с	0	D	С	0	D	С	0	D	с	0	D
Breeding seabird assemblage including as named features Arctic skua, great black- backed gull, guillemot, kittiwake, red- throated diver, fulmar, puffin, great skua		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Breeding peregrine		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)
 (a) Hoy SPA is beyond maximum foragin through the Norfolk Vanguard site ar (b) Peregrines breeding in the UK norma (c) The predicted effect attributable to N 	e small rela lly remain c	tive to BDI close to the	MPS. eir breeding	g areas thr	oughout t	ne year, an	d are very	unlikely to	migrate of	fshore in	the UK.	-

these features at Hoy SPA.





Site					76																
Name of Eu	iropean	Site:			Hu	ımber E	stuary	SAC													
Distance to	Norfoll	(Vangu	ard (kn	ו)	14	9															
Marine Ma	mmals																				
Site Feature	es	L	ikely eff	ect(s) o	f Norfol	k Vangı	uard														
		L	Inderwa	iter nois	e		sturban	eraction ce at sea		Inc	lirect e	fects on	prey	Char	nges to	water c	luality	In co	mbinati	on	
		С	:	0	D	С		0	D	С		0	D	С	0		D	С	0		D
Grey seal		Ν	I (a)	N (a)	N (a)	Y(b)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)	N	a)	N (a)
Fish			I				I		1		I		<u> </u>								
Site	Likely	effect(s	s) of Nor	rfolk Var	nguard																
Features	Perma loss	nent h	abitat	Tempo disturt	orary pł oance	nysical	Smoti increa suspe sedim	nded	ue to		obilisa minate ients			water r bration	ioise		omagne (EMF)	tic	In con	nbinatic	n
	С	0	D	с	0	D	С	0	D	с	0	D	С	0	D	С	0	D	с	0	D
Sea Lamprey	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)
River lamprey	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)





Site		76																
Name of European Site:		Humb	er Estua	ary SAC														
Distance to Norfolk Vanguard (kn	n)	149																
Benthic habitats																		
Site Features	Perma	anent lo	SS	Temp distur	orary pl bance	hysical	Smoth increa suspe sedim	nded	ue to		obilisati minate ents			water r ibration		In con	nbinatio	n
	С	0	D	с	0	D	с	0	D	с	0	D	с	0	D	с	0	D
Estuaries	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)
Mudflats and sandflats not covered by seawater at low tide	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)
Sandbanks which are slightly covered by sea water all the time	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)
Coastal lagoons	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)

b) Potential for vessel interactions and disturbance at seal haul-out sites if a port to the north of the offshore project area is selected and therefore LSE cannot be ruled out at the screening stage.

c) The distance between the offshore project area and the designated site is beyond the range of any potential LSE.





Cite.												
Site	77											
Name of European Site:	Humber Est	uary SPA a	nd Ramsar									
Distance to Norfolk Vanguard (km)	149											
Site Features	Likely eff	ect(s) of N	orfolk Vang	guard								
	Collision	mortality		Displace	ment/Distu	urbance	Barrier E	ffect		Cumulat	ive/In-com	bination
	с	0	D	с	0	D	С	0	D	с	0	D
Wintering and passage waterbird assemblage including as named features teal, wigeon, mallard, turnstone, pochard scaup, bittern, brent goose, goldeneye, sanderling, dunlin, knot, ringed plover, oystercatcher, bar-tailed godwit, black- tailed godwit, curlew, golden plover, grey plover, avocet, shelduck, redshank, lapwing, whimbrel, ruff, greenshank <i>Tringa nebularia</i>		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (g)	N (g)	N (g)
Nonbreeding hen harrier		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (g)	N (g)	N (g)
Breeding bittern		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (g)	N (g)	N (g)
Breeding marsh harrier		N (d)		N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (d)
Breeding avocet		N (e)		N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (g)	N (g)	N (g)
Breeding little tern		N (f)		N (f)	N (f)	N (f)	N (f)	N (f)	N (f)	N (f)	N (f)	N (f)

(a) Survey data show little or no evidence of Humber Estuary SPA features occurring in the Norfolk Vanguard sites, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site during migration.

(b) Survey data show no evidence of Humber Estuary SPA feature hen harrier occurring in the Norfolk Vanguard sites, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site during migration as UK birds are likely to migrate overland rather than over the sea where possible.

(c) Bittern has not been observed during bird surveys at Norfolk Vanguard, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site during migration.

(d) Marsh harrier is a migrant species. Satellite tracking suggests that marsh harriers migrate overland to the south coast of England and over the Channel to





Site	77
Name of European Site:	Humber Estuary SPA and Ramsar
Distance to Norfolk Vanguard (km)	149
their migration is likel site their flight height	bserved during bird site specific surveys. It is highly unlikely that these birds would migrate through the Norfolk Vanguard site as y to take a coastal route and cross sea at narrow points such as The English Channel. If they did migrate through the Norfolk Vanguard is likely not to be at collision risk height.
	s a maximum foraging range of 11km from colonies, so would have no connectivity with Norfolk Vanguard. Migrating little terns are emely coastal on passage with very few sightings in open ocean or inland' (Forrester et al. 2007), so are unlikely to pass through the
	ttributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment Iumber Estuary SPA and Ramsar.

Site Name of European Site:	78 Hund ւ	und Paap	osand SC)											
Distance to Norfolk Vanguard (km)	261														
Site Features	Likely e	effect(s)	of Norfo	olk Vangu	ard										
	Under	water no	oise	Vessel I	nteractic	ns	Indirect	t effects o	on prey	Change quality	s to wate	r	In comb	oination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	d and the	extent of	any effe	ct on indi	viduals fr	om this si	te would	result in	no poten	tial for LS	E.





Site	'9															
Name of European Site:	mperial Doc	k Lock, Leit	h SPA:													
Distance to Norfolk Vanguard (km)	91															
Site Features	Likely e	ffect(s) of N	Iorfolk Van	guard												
	Collision	Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Disturbance Barrier Effect Cumulative/In-combination														
	с	0	D	с	0	D	С	0	D	С	0	D				
Breeding common tern		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)				
 (a) Imperial Dock Lock SPA is b population migrating throu (b) The predicted effect attribu assessment for these feature 	gh the Norfo table to Nor	olk Vanguar folk Vangu	d site is like ard is so sn	ely to be e	xtremely s	mall relativ	ve to BDM	PS.				of the				





Site Name of Eu Distance to			l (km)	80 Inner D 44	owsing, I	Race Ban	k and No	rth Ridge	SCI									
Site	Likely e	ffect(s) o	f Norfolk	Vanguar	d													
Features	Perma	nent loss	,	Tempo disturb	orary phy bance	sical		ering du sed susp ent			obilisation ninated ents	n of		water no bration	oise	In com	bination	
	с	0	D	с	0	D	с	0	D	С	0	D	с	0	D	С	0	D
Sandbanks which are slightly covered by sea water all the time	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)
Reefs	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)





Site 81												
Name of European Site: In	ner Moray	Firth SPA 8	& Ramsar									
Distance to Norfolk Vanguard (km) 65	2											
Site Features	Likely ef	fect(s) of N	Iorfolk Van	guard								
	Collision	mortality		Displace	ement/Dist	turbance	Barrier	Effect		Cumula	tive/In-cor	mbinatio
	С	0	D	с	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named features bar-tailed godwit, curlew, goldeneye, greylag goose, redshank, wigeon, goosander, teal, red-breasted merganser, cormorant, oystercatcher, scaup		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (d)	N (d)	N (d)
Breeding osprey		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)
Breeding common tern		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (d)	N (d)	N (d)
 (a) Survey data show little or no evider Ramsar are likely to result in negligi (b) Osprey has not been observed in th Norfolk Vanguard site. 	ble numbe	rs passing	through the	e Norfolk	Vanguard	site.	2		-			

(c) Inner Moray Firth SPA is far beyond maximum foraging range of common tern so has no breeding season connectivity. The proportion of the population migrating through the Norfolk Vanguard site is likely to be extremely small relative to BDMPS.

(d) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Inner Moray Firth SPA & Ramsar.





Site Name of European Site:	82 Isle of	May SA	С												
Distance to Norfolk Vanguard (km)	478														
Site Features	Likely e	effect(s)	of Norfo	olk Vangu	ard										
	Underv	ely effect(s) of Norfolk Vanguard derwater noise Vessel Interactions Indirect effects on prey quality In combination													
	С	0	D	С	0	D	С	0	D	С	0	D	C	0	D
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Grey seal a) The distance between the potentia											ite would				;





Site Name of European Site:	83 Klaver	bank SCI	I												
Distance to Norfolk Vanguard (km)	93														
Site Features		effect(s) water no		Vessel I C	ard Interactio O	ns D	Indirec	t effects o	on prey D	Change quality C	s to wate	er D	In comb	oination	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	d and the	extent of	any effe	ct on ind	ividuals fr	om this s	ite would	result in	no poten	tial for LS	E.





Site Name of European Site:	84 Knude	grund S	AC												
Distance to Norfolk Vanguard (km)	675														
Site Features	Likely e	effect(s)	of Norfc	olk Vangu	ard										
	Underv	water no	oise	Vessel I	nteractio	ons	Indirec	t effects o	on prey	Change quality	s to wate	r	In comb	oination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact ı	range of	Norfolk	Vanguaro	d and the	extent of	any effe	ct on indi	viduals fr	om this s	ite would	result in	no poten	tial for LS	E.





Site Name of European Site:	85 Koster	fjorden-	Väderöf	jorden SA	۱C										
Distance to Norfolk Vanguard (km)	800														
Site Features		effect(s) water no		olk Vangu Vessel I	ard nteractic	ons	Indirec	t effects o	on prey	-	s to wate	er	In comb	oination	
										quality					
	С	0	D	C	0	D	С	0	D	С	0	D	C	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	d and the	extent o	f any effe	ct on ind	ividuals fr	rom this s	ite would	l result in	no poten	tial for LS	E.





Site Name of European Site:	86 Küsten	- und Di	inenland	dschaften	Amrums	s SAC									
Distance to Norfolk Vanguard (km)	395														
Site Features	Likely e	effect(s)	of Norfo	olk Vangu	ard										
	Underv	water no	oise	Vessel Interactions Indirect effects on prey Changes to water In combination quality Quality Quality Quality Quality Quality											
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	d and the	extent of	f any effe	ct on indi	viduals fr	om this s	ite would	result in	no poten	tial for LS	jE.





Site 8	7											
Name of European Site: L	indisfarne Sl	PA and Ran	nsar									
Distance to Norfolk Vanguard (km) 3	98											
Site Features	Likely ef	fect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Dist	urbance	Barrier E	ffect		Cumulat	tive/In-con	nbinatio
	с	0	D	С	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named features wigeon, greylag goose, brent goose, sanderling, dunlin, ringed plover, goldeneye, whooper swan, black-tailed godwit, common scoter, red-breasted merganser, golden plover, grey plover, eider, shelduck, redshank		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Breeding little tern, roseate tern		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)

(b) Breeding little tern has a maximum foraging range of 11km from colonies, so would have no connectivity with Norfolk Vanguard. Migrating little terns are considered to be 'extremely coastal on passage with very few sightings in open ocean or inland' (Forrester et al. 2007), so are unlikely to pass through the Norfolk Vanguard site. Breeding roseate tern has a maximum foraging range of 30km from colonies, so would have no connectivity with Norfolk Vanguard. Migrating roseate terns are unlikely to pass through the Norfolk Vanguard site as their migration tends to be coastal.

(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Lindisfarne SPA and Ramsar.





Site Name of European Site:	88 Littora	l Caucho	is SAC												
Distance to Norfolk Vanguard (km)	314														
Site Features	Likely e	effect(s)	of Norfo	olk Vangu	ard										
	Underv	water no	oise	Vessel I	nteractio	ons	Indirect	t effects o	on prey	Change quality	s to wate	۱r	In comb	bination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	and the	extent of	f any effe	ct on indi	viduals fr	om this s	ite would	result in	no poten	tial for LS	E.





Site 89												
Name of European Site: Litt	oral Seino-	Marin SPA	L .									
Distance to Norfolk Vanguard (km) 315	;											
Site Features	Likely eff	ect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Distu	urbance	Barrier E	ffect		Cumulat	ive/In-com	bination
	с	0	D	с	0	D	С	0	D	с	0	D
Breeding seabirds including fulmar, shag, gannet, herring gull, great black-backed gull, kittiwake		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (f)	N (f)	N (f)
Nonbreeding winter and passage seabird assemblage including as named features red-throated diver, black-throated diver, great crested grebe, fulmar, gannet, cormorant, shag, pomarine skua <i>Stercorarius pomarinus</i> , great skua, Mediterranean gull <i>Larus</i> <i>melanocephalus</i> , little gull, lesser black- backed gull, herring gull, great black- backed gull, kittiwake, Sandwich tern, common tern, guillemot, razorbill		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (f)	N (f)	N (f)
Nonbreeding little egret, spoonbill Platalea leucorodia, honey buzzard Pernis apivorus, hen harrier, merlin Falco columbarius, peregrine, avocet		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)
Breeding peregrine		N (d)		N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (d)
Nonbreeding woodlark Lullula arborea		N (e)		N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (e)

seabird species so has no breeding season connectivity. Proportions of these populations migrating through the Norfolk Vanguard site are likely to be





Site		89
Name of Eur	opean Site:	Littoral Seino-Marin SPA
Distance to	Norfolk Vanguard (km)	315
(b)	SPA is 315km from the No	to BDMPS. ulations migrating through the Norfolk Vanguard site are likely to be extremely small relative to BDMPS, not only because the orfolk Vanguard site, but also because birds on the continental side of the Channel and North Sea are likely to tend to migrate up her than crossing the North Sea to the UK.
(c)	•	s been recorded during bird surveys at the Norfolk Vanguard site. It is unlikely that birds from the SPA will migrate through the these species are generally scarce migrants in the UK, and their migrations tend to be coastal rather than over open sea.
(d)	Breeding peregrines in we would reach Norfolk Vang	estern Europe tend to remain close to their breeding site throughout the year so it is extremely unlikely that any from the SPA guard site.
(e)	Woodlark is a very scarce	e migrant to the UK, so it is very unlikely that individuals from the SPA would reach the Norfolk Vanguard site.
(f)	•	butable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination tures at Littoral Seino-Marin SPA.





Site	90												
Name of European Site:	Loch	of Strathb	eg SPA & F	Ramsar									
Distance to Norfolk Vanguard (km)	581												
Site Features		Likely eff	ect(s) of N	orfolk Van	guard								
		Collision	mortality		Displace	ment/Dist	urbance	Barrier E	ffect		Cumula	tive/In-cor	nbination
		С	0	D	с	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named feat greylag goose, pink-footed goose, te Svalbard barnacle goose <i>Branta leue</i> whooper swan	eal,		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Breeding Sandwich tern			N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (c)	N (c)	N (c)
 (a) Survey data show little likely to result in neglig (b) Loch of Strathbeg SPA Proportion of the population 	gible nu is far be ulation r	mbers pass eyond max migrating t	sing throug imum fora hrough the	gh the Norf ging range e Norfolk V	folk Vangu of Sandwi anguard si	ard site. ch tern (54 te is likely	ikm, Thaxt to be extre	er et al. 20 emely sma	12) so has Il relative t	no breedir			

(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Loch of Strathbeg SPA & Ramsar.





Site Name of European Site:	91 Lønstri	up Rødg	rund SA	.C											
Distance to Norfolk Vanguard (km)	648														
Site Features	Likely e	effect(s)	of Norfo	olk Vangu	ard										
	Likely effect(s) of Norfolk Vanguard Underwater noise Vessel Interactions Indirect effects on prey Changes to water quality														
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	d and the	extent of	f any effe	ct on indi	viduals fr	om this s	ite would	result in	no poten	tial for LS	E.





Site Name of Eu	ropean S	ite:		92 Margat	e and Lo	ng Sands	SCI											
Distance to	Norfolk	Vanguaro	d (km)	99														
Site	Likely e	ffect(s) o	f Norfolk	Vanguar	d													
Features	Perma	nent loss		Tempo disturb	orary phy bance	rsical		ering du sed susp ent			obilisation ninated ents	n of		water no bration	ise	In com	ibination	
	с	0	D	с	0	D	с	0	D	С	0	D	с	0	D	С	0	D
Sandbanks which are slightly covered by sea water all the time	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)
(a) The	distance	between	the offsh	ore proje	ct area a	nd the de	signated	site is be	yond the	range of	any pote	ential LSE	•		<u> </u>	<u> </u>	1	<u>I</u>





Site 9	3											
Name of European Site: N	larwick He	ad SPA										
Distance to Norfolk Vanguard (km) 7	67											
Site Features	Likely e	ffect(s) of N	Iorfolk Van	guard								
	Collisio	n mortality		Displace	ement/Dist	turbance	Barrier	Effect		Cumula	tive/In-cor	nbination
	С	0	D	С	0	D	С	0	D	С	0	D
Breeding seabird assemblage including as named features guillemot and kittiwake		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
(a) Marwick Head SPA is beyond maxi migrating through the Norfolk Van	guard site	are small re	lative to BI	OMPS.			-					
(b) The predicted effect attributable to these features at Marwick Head SF		anguard is	so small th	at it would	l not signif	icantly con	tribute to	or alter th	e overall in	-combinat	ion assessi	ment for





Site 94	94											
Name of European Site: M	Aedway Estuary & Marshes SPA and Ramsar											
Distance to Norfolk Vanguard (km) 190												
Site Features	Likely effect(s) of Norfolk Vanguard											
	Collision mortality			Displacement/Disturbance			Barrier Effect			Cumulative/In-combination		
	С	0	D	с	0	D	С	0	D	с	0	D
Wintering and passage waterbird assemblage including as named features pintail, shoveler, teal, wigeon, turnstone, brent goose, dunlin, knot, ringed plover Bewick's swan, oystercatcher, black-tailed godwit, curlew, grey plover, great crested grebe, avocet, shelduck, greenshank, redshank		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (d)	N (d)	N (d)
Breeding avocet		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)
Breeding little tern, common tern		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)

(a) Survey data show little or no evidence of Medway Estuary & Marshes SPA features occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(b) Avocet has not been observed during bird site-specific surveys. It is highly unlikely that these birds would migrate through the Norfolk Vanguard site as their migration is likely to take a coastal route and cross sea at narrow points such as The English Channel. If they did migrate through the Norfolk Vanguard site their flight height is likely not to be at collision risk height.

(c) Breeding little tern has a maximum foraging range of 11km from colonies (Thaxter et al. 2012), so would have no connectivity with Norfolk Vanguard. Migrating little terns are considered to be 'extremely coastal on passage with very few sightings in open ocean or inland' (Forrester et al. 2007), so are unlikely to pass through the Norfolk Vanguard site. Breeding common tern has a maximum foraging range of 30km from colonies (Thaxter et al. 2012), so would have no connectivity with Norfolk Vanguard. Migrating common terns are unlikely to pass through the Norfolk Vanguard site as their migration tends to be coastal where that is an option.

(d) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Medway Estuary & Marshes SPA and Ramsar.





Site	95											
Name of European Site:	Minsmere -	Walbersw	ick SPA an	d Ramsar								
Distance to Norfolk Vanguard (km)	75											
Site Features	Likely eff	ect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Dist	urbance	Barrier E	ffect		Cumulat	ive/In-com	bination
	С	0	D	С	0	D	С	0	D	С	0	D
Wintering shoveler, gadwall, white- fronted goose		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (g)	N (g)	N (g)
Nonbreeding hen harrier		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (g)	N (g)	N (g)
Breeding shoveler, teal, gadwall, bittern, avocet		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (g)	N (g)	N (g)
Breeding nightjar Caprimulgus europaeus		N (d)		N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (g)	N (g)	N (g)
Breeding marsh harrier		N (e)		N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (e)
Breeding little tern		N (f)		N (f)	N (f)	N (f)	N (f)	N (f)	N (f)	N (f)	N (f)	N (f)

(a) Survey data show no evidence of Minsmere-Walberswick SPA features shoveler, gadwall or white-fronted goose occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(b) Survey data show no evidence of hen harrier occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site as UK birds are likely to migrate overland rather than over the sea where possible.

(c) Survey data show no evidence of Minsmere-Walberswick SPA features shoveler, teal, gadwall, bittern or avocet occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(d) Survey data show no evidence of nightjar occurring in the Norfolk Vanguard OWF sites, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site as UK birds are likely to migrate overland rather than over the sea where possible and make short sea crossings from southern England to France.

(e) Marsh harrier is a migrant species. Satellite tracking suggests that marsh harriers migrate overland to the south coast of England and over the Channel to France, rather than across the North Sea.

(f) Breeding little tern has a maximum foraging range of 11km from colonies (Thaxter et al. 2012), so would have no connectivity with Norfolk Vanguard. Migrating little terns are considered to be 'extremely coastal on passage with very few sightings in open ocean or inland' (Forrester et al. 2007), so are unlikely to pass through the Norfolk Vanguard site.

(g) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for





Site	95
Name of European Site:	Minsmere - Walberswick SPA and Ramsar
Distance to Norfolk Vanguard (km)	75
these features at Minsmere-Walber	rswick SPA and Ramsar.

Site 90	;											
Name of European Site: M	ontrose Ba	sin SPA & F	Ramsar									
Distance to Norfolk Vanguard (km) 52	20											
Site Features	Likely ef	fect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Distu	urbance	Barrier E	ffect		Cumulat	ive/In-com	bination
	с	0	D	с	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named features dunlin, eider, knot, shelduck, wigeon, pink-footed goose, greylag goose, redshank, oystercatcher		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
 (a) Survey data show little or no evidence result in negligible numbers passing the second second	hrough the Iorfolk Van	Norfolk Va guard is so	anguard sit	e.		-		_				





Site 9	7											
Name of European Site: N	loray and N	airn Coast	SPA & Ram	nsar								
Distance to Norfolk Vanguard (km) 6	24											
Site Features	Likely ef	fect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Dist	urbance	Barrier B	ffect		Cumula	tive/In-cor	nbination
	С	0	D	с	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named features common scoter, long-tailed duck, oystercatcher, bar-tailed godwit, wigeon, pink-footed goose, red-breasted merganser, redshank, velvet scoter, greylag goose, dunlin		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Breeding osprey		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)
 (a) Survey data show little or no evide likely to result in negligible numbe (b) Osprey has not been observed in t (c) The predicted effect attributable t 	rs passing th he Norfolk V	nrough the anguard si	Norfolk Va te, and it is	nguard sit improbal	e. ple that an	y ospreys f	rom the SI	PA migrate	through th	ne Norfolk	Vanguard	site.

these features at Moray & Nairn Coast SPA and Ramsar.





Site	98												
Name of European Site:	Мо	usa SPA											
Distance to Norfolk Vanguard (km)	807												
Site Features		Likely ef	fect(s) of I	Norfolk Van	guard								
		Collision	mortality		Displace	ement/Dist	urbance	Barrier	Effect		Cumula	tive/In-coi	mbination
		С	0	D	С	0	D	С	0	D	С	0	D
Breeding Arctic tern			N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Breeding European storm-petrel Hydrobates pelagicus			N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)
 (a) Mousa SPA is beyond maximu population migrating through (b) European storm-petrels were species migrates from its bree (c) The predicted effect attributa 	the No not obs eding sit	rfolk Van served in te on Mou	guard site the Norfol usa into th	is likely to l lk Vanguarc e North Atl	be extrem I site, and antic and	ely small r are rarely not norma	elative to E seen anyw lly through	BDMPS. where in the the North	e southern Sea.	North Sea	, so eviden	ice suggest	s that this
(c) The predicted effect attributa these features at Mousa SPA.	טופ נט וי	NUTIOIK Va	inguaru is	SU SIIIdii Uli		a not signi	icantiy con	iti bute to	or alter th	e overall li		1011 855855	inent for





Site Name of European Site:	99 Muhle	nberger	Loch/Ne	esssand So	CI										
Distance to Norfolk Vanguard (km)	448														
Site Features		effect(s) water no		lk Vangu Vessel I	ard nteractio	ons	Indirec	t effects o	on prey	Change	s to wate	er	In comb	pination	
										quality					
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	and the	extent of	f any effe	ct on indi	viduals fr	om this s	ite would	result in	no poten	tial for LS	,Е.

Site Name of European Site:	100 Natior	nalpark N	liedersä	chsisched	lWatten	meer SAC	2								
Distance to Norfolk Vanguard (km)	246														
Site Features		effect(s) water no		olk Vangu Vessel I	ard nteractic	ons	Indirec	t effects o	on prey	Change	es to wate	۱	In com	pination	
	С	0	D	С	0	D	С	0	D	C	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	d and the	extent of	f any effe	ct on ind	viduals fr	om this s	ite would	result in	no poten	tial for LS	ь́Е.





Enhancing Society	y Together																				
Site				10)1																
Name of Eu	uropean	Site:		N	oordzee	kustzoi	ne SAC														
Distance to	Norfolk	Vangu	ard (kn	n) 98	3																
Marine Ma	mmals																				
Site Feature	es	L	ikely eff	fect(s) o	f Norfol	k Vangu	iard														
		L	Inderwa	ater nois	e		sturban	eractior ce at sea		Ind	irect ef	fects on	prey	Chai	nges to	water q	uality	In co	mbinati	on	
		C	:	0	D	C		0	D	С	0	C	D	С	0		D	C	0	1	D
Harbour po	orpoise	Ν	I (a)	N (a)	N (a)	N	(a)	N (a)	N (a)	N (a) ſ	N (a)	N (a)	N (a)		N (a)	N (a)	N (a) I	N (a)
Grey seal		Ν	l (a)	N (a)	N (a)	Ν	(a)	N (a)	N (a)	N (;	a) ſ	N (a)	N (a)	N (a)		N (a)	N (a)	N (a) I	N (a)
Harbour sea	al	Ν	I (a)	N (a)	N (a)	N	(a)	N (a)	N (a)	N (a) ſ	N (a)	N (a)	N (a)		N (a)	N (a)	N (a) I	N (a)
Fish																					
Site	Likely	effect(s	s) of Noi	rfolk Var	nguard																
Features	Perma loss	inent h	abitat	Tempo disturi	orary pł bance	nysical	Smoth increa suspe sedim	nded	ue to		obilisat minateo ents			water r ibration	ioise		omagne (EMF)	tic	In con	nbinatio	'n
	С	о	D	С	0	D	с	0	D	с	0	D	С	0	D	с	0	D	с	0	D
Sea Lamprey	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(
Allis Shad	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(





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b) The distance between the offshore project area and the designated site is beyond the range of any potential LSE.





Site				102																				
Name of Europe	ean Sit	e:		Norfo	lk Va	lley Fe	ens SA	C																
Distance to Nor (km)	folk Va	ingua	ard	0.6+ ()	17 si1	tes, wi	th 5 si	tes wit	thin 5l	km of t	he onshor	e proje	ct area)										
	Likely	effe	ct(s) c	of Norf	olk V	anguar	ď																	
	Direc (e.g. loss) withi	habit on la	at nd n	Impac featur outsid the or projec	es e 5ki ishor	m of e	situ h funct	cts on abitat ionally ected AC	:S /	grour hydro	rbance due ndwater / blogy chang n 5km		Impact noise (within	distu	rbance	Impac changi quality 5km	ing ai	ir			m light within	Impac visual within	distu	
	С	0	D	с	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Alkaline fens	N(a)		N(a)	N(b)		N(b)	N(b)	N(b)	N(b)	Y(c)	Y(c)	Y(c)	N(e)		N(e)	Y(c)		Y(c)	N(e)		N(e)	N(e)		N(e)
Northern Atlantic wet heaths with <i>Erica tetralix</i>	N(a)		N(a)	N(b)		N(b)	N(b)	N(b)	N(b)	Y(c)	Y(c)	Y(c)	N(e)		N(e)	Y(c)		Y(c)	N(e)		N(e)	N(e)		N(e)
European dry heaths	N(a)		N(a)	N(b)		N(b)	N(b)	N(b)	N(b)	Y(c)	Y(c)	Y(c)	N(e)		N(e)	Y(c)		Y(c)	N(e)		N(e)	N(e)		N(e)
Semi-natural dry grassland and scrubland facies on calcareous substrates (<i>Festuco-</i> <i>Brometalia</i>)	N(a)		N(a)	N(b)		N(b)	N(b)	N(b)	N(b)	N(d)	N(d)	N(d)	N(e)		N(e)	N(d)		N(d)	N(e)		N(e)	N(e)		N(e)
Molinia meadows on calcareous,	N(a)		N(a)	N(b)		N(b)	N(b)	N(b)	N(b)	Y(c)	Y(c)	Y(c)	N(e)		N(e)	Y(c)		Y(c)	N(e)		N(e)	N(e)		N(e)





Site				102																				
Name of Europe	an Sit	e:		Norfo	lk Va	illey Fe	ens SA	С																
Distance to Nor (km)	folk Va	angu	ard	0.6+ (17 si	tes, wi	th 5 si	tes wi	thin 5l	km of t	he onshore	e proje	ct area)										
	Likely	effe	ct(s) o	f Norf	olk V	anguai	rd																	
	Direc (e.g. loss) withi	habit on la	at Ind m	Impac featur outsic the or projec	es le 5k shor	m of re	situ h funct	cts on habitat ionally ected AC	:s /	grour hydro	rbance due ndwater / plogy chang n 5km		Impac noise within	distu	rbance	Impac chang quality 5km	ing a	ir			m light within		distu	rbance
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
peaty or clayey- silt-laden soils (<i>Molinion</i> caeruleae)																								
Calcareous fens with Cladium mariscus and species of the Caricion davallianae	N(a)		N(a)	N(b)		N(b)	N(b)	N(b)	N(b)	Y(c)	Y(c)	Y(c)	N(e)		N(e)	Y(c)		Y(c)	N(e)		N(e)	N(e)		N(e)
Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno- Padion, Alnion incanae, Salicion albae)	N(a)		N(a)	N(b)		N(b)	N(b)	N(b)	N(b)	Y(c)	Y(c)	Y(c)	N(e)		N(e)	Y(c)		Y(c)	N(e)		N(e)	N(e)		N(e)
Narrow- mouthed whorl	N(a)		N(a)	N(b)		N(b)	N(b)	N(b)	N(b)	Y(c)	Y(c)	Y(c)	N(e)		N(e)	Y(c)		Y(c)	N(e)		N(e)	N(e)		N(e)





Ennuncing Society Toget	inci i																							
Site				102																				
Name of Europe	ean Sit	:e:		Norfo	lk Va	lley Fe	ens SA	С																
Distance to Nor (km)	folk V	angu	ard	0.6+ (17 sit	tes, wi	th 5 si	tes wi	thin 5l	km of t	he onshore	e proje	ct area)										
	Likel	y effe	ct(s) c	of Norf	rfolk Vanguard acts on Impacts on ex- situ habitats groundwater / Impacts from Impacts from Impacts from light Impacts from onise disturbance changing air disturbance within visual dist																			
	(e.g. loss)	ct effe habit on la in 5ki	at Ind m	Impac featur outsid the or projec	res le 5ki nshor	m of e	situ h funct	abitat ionally ected	:s /	groun	dwater / logy chang			distu	rbance		ng ai	r			-		distu	rbance
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	с	0	D
snail																								
Desmoulin's whorl snail Vertigo moulinsiana	N(a)		N(a)	N(b)		N(b)	N(b)	N(b)	N(b)	N(d)	N(d)	N(d)	N(e)		N(e)	N(d)		N(d)	N(e)		N(e)	N(e)		N(e)

a) Direct impacts on features within 5km of the onshore project area have been screened out as they are beyond the range of potential direct impact.

b) Direct impacts on the features of the Norfolk Valley Fens SAC beyond 5km of the onshore project area have been screened out due to distance from the onshore project area. Effects of the project on ex-situ habitats functionally connected to the SAC have been screened out from further assessment as qualifying features of the SAC are all habitats or non-mobile species.

c) Potential indirect effects of Norfolk Vanguard on the Norfolk Valley Fens SAC are alterations to the groundwater/hydrology regime and air quality effect upon qualifying habitats of the SAC present within 5km of the onshore project area (5 component SSSIs have therefore been screened in to further assessment).

d) Feature is not located within the 5 sites within 5km of the onshore project area, therefore is not screened in for further assessment (see footnote (b)).

e) The qualifying features of the Norfolk Valley Fens SAC are not sensitive to noise, visual, or light disturbance and therefore there is no potential LSE and these have been screened out.





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.03											
lorth Caith	nness Cliff	s SPA									
'08											
Likely effe	ect(s) of N	orfolk Vang	guard								
Collision n	nortality		Displace	ement/Dist	urbance	Barrier I	Effect		Cumula	tive/In-cor	nbination
С	0	D	С	0	D	С	0	D	С	0	D
	N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
	N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)
	orth Caith 08 Likely effe Collision r	orth Caithness Cliff D8 Likely effect(s) of N Collision mortality C O N (a)	orth Caithness Cliffs SPA D8 Likely effect(s) of Norfolk Vang Collision mortality C O D N (a)	orth Caithness Cliffs SPA D8 Likely effect(s) of Norfolk Vanguard Collision mortality Displace C O D C N (a) N (a)	orth Caithness Cliffs SPA D8 Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Dist C O D C O N (a) N (a) N (a)	orth Caithness Cliffs SPA D8 Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Disturbance C O D C O D N (a) N (a) N (a) N (a)	orth Caithness Cliffs SPA D8 Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Disturbance Barrier B C O D C O D C N (a) N (a) N (a) N (a) N (a) N (a)	orth Caithness Cliffs SPA D8 Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Disturbance Barrier Effect C O D C O D C O D C O N (a) N (a) N (a) N (a) N (a) N (a) N (a)	orth Caithness Cliffs SPA D8 Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Disturbance Barrier Effect C O D C O D C O D C O D N (a) N (a)	orth Caithness Cliffs SPA D8 Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Disturbance Barrier Effect Cumular C O D C O D C O D C C N (a) N (a)	orth Caithness Cliffs SPA D8 Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Disturbance Barrier Effect Cumulative/In-cor C O D C O D C O D C O N (a) N (c) N (c)

(b) Peregrines breeding in the UK normally remain close to their breeding areas throughout the year, and are very unlikely to migrate offshore from the UK.

(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at North Caithness Cliffs SPA.





Site 10)4											
Name of European Site: N	orth Norfol	k Coast SP	A and Ram	sar								
Distance to Norfolk Vanguard (km) 80)											
Site Features	Likely ef	fect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Dist	urbance	Barrier E	Effect		Cumulat	ive/In-com	bination
	С	0	D	с	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named features wigeon, pink-footed goose, brent goose, knot, avocet		Y (a)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (g)	Y (a)	N (g)
Breeding bittern		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (g)	N (g)	N (g)
Breeding marsh harrier		N (d)		N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (g)	N (g)	N (g)
Breeding avocet		N (e)		N (e)	N (e)	N (e)	N (e)	N (e)	N (e)	N (g)	N (g)	N (g)
Breeding little tern, common tern, Sandwich tern		N (f)		N (f)	N (f)	N (f)	N (f)	N (f)	N (f)	N (g)	N (g)	N (g)

(a) Following advice from Natural England, there is potential for connectivity during migration therefore LSE cannot be screened out.

(b) Survey data show little or no evidence of North Norfolk Coast SPA features wigeon, pink-footed goose, brent goose, knot, avocet occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site during migration.

(c) Survey data show no evidence of North Norfolk Coast SPA feature bittern occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(d) Marsh harrier is a migrant species. Satellite tracking suggests that marsh harriers migrate overland to the south coast of England and over the Channel to France, rather than across the North Sea.

(e) Survey data show no evidence of North Norfolk Coast SPA feature avocet occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(f) Little tern, common tern and Sandwich tern have maximum foraging ranges from colonies of 11km, 30km and 54km respectively (Thaxter et al. 2012), so there is no connectivity between the SPA and Norfolk Vanguard site. Furthermore, these species tend to forage in coastal waters rather than offshore. Therefore, collision risk, displacement and barrier effects can be excluded.

(g) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at North Norfolk Coast SPA and Ramsar.





Site Name of Eu Distance to			d (km)	105 North M 2	lorfolk S	andbanks	s and Sat	urn Reef	SAC									
Site	Likely e	ffect(s) o	f Norfolk	Vanguar	t													
Features	Perma	nent loss	5	Tempo disturk	orary phy oance	rsical		ering du sed susp ent			obilisatior ninated ents	n of		water no bration	oise	In com	bination	
	с	о	D	с	0	D	с	0	D	с	0	D	с	0	D	с	0	D
Sandbanks which are slightly covered by sea water all the time	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)
Reefs	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)





Site 1	06											
Name of European Site: N	lorthumb	ria Coast SP	A and Rams	ar								
Distance to Norfolk Vanguard (km) 3	08											
Site Features	Likely	effect(s) of	Norfolk Van	nguard								
	Collisi	on mortality	1	Displac	ement/Dis	urbance	Barrier	Effect		Cumula	itive/In-coi	mbination
	С	0	D	С	0	D	С	0	D	С	0	D
Nonbreeding turnstone, purple sandpiper Calidris maritima		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Breeding little tern		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)
 (a) Survey data show little or no evide migrations of birds from this SPA a (b) Breeding little tern has a maximum little terns are considered to be 'ex 	re likely to n foraging	o result in n range of 11	egligible nu km from co	mbers pas lonies (Th	ssing throu axter <i>et al</i>	gh the Nor 2012), so	folk Vangu would hav	iard site. e no conne	ectivity wit	h Norfolk V	Vanguard.	Migrating

through the Norfolk Vanguard site.(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for

these features at Northumbria Coast SPA and Ramsar.





Site	.07											
Name of European Site:	loss SPA											
Distance to Norfolk Vanguard (km) 8	16											
Site Features	Likely ef	fect(s) of N	orfolk Vang	guard								
	Collision	mortality		Displacer	ment/Distu	urbance	Barrier E	ffect		Cumulat	ive/In-com	bination
	С	0	D	С	0	D	С	0	D	С	0	D
Breeding seabird assemblage including as named features gannet, fulmar, guillemot, kittiwake, puffin, great skua		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
 (a) Noss SPA is beyond maximum forag through the Norfolk Vanguard site a (b) The predicted effect attributable to these features at Noss SPA. 	re likely to	be extrem	ely small re	lative to B	DMPS.	-						

Site Name of European Site:	108 NTP S-	H Watte	enmeer ι	Ind angre	nzende k	(ustengel	oiete SAC								
Distance to Norfolk Vanguard (km)	365														
Site Features	Likely	effect(s)	of Norfo	olk Vangu	ard										
	Under	water no	oise	Vessel I	nteractio	ons	Indirec	t effects o	on prey	Change	s to wate	er 🛛	In comb	pination	
										quality					
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	and the	extent of	any effe	ct on ind	ividuals fr	om this s	ite would	result in	no poten	tial for LS	jE.





Site Name of European Site:	109 Ooster	schelde	SAC												
Distance to Norfolk Vanguard (km)	130														
Site Features	Likely e	effect(s)	of Norfo	lk Vangu	ard										
	Underv	water no	vise	Vessel I	nteractio	ns	Indirect	t effects o	on prey	Change quality	s to wate	r	In comb	oination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	impact i	range of	Norfolk	Vanguaro	d and the	extent of	any effe	ct on indi	viduals fr	om this s	ite would	result in	no poten	tial for LS	E.

Site Name of E	uropean	Site:		110 Orfordi	ness - Shi	ngle Stre	et SAC											
Distance t	o Norfoll	k Vangua	rd (km)	70														
Site	Likely e	ffect(s) o	f Norfolk	Vanguar	d													
Features	Perma	nent loss		Tempo disturk	orary phy Dance	sical		ering du sed susp ent			obilisation ninated ents	n of		water no bration	ise	In com	ibination	
	С	0	D	С	0	D	с	0	D	С	0	D	с	0	D	с	0	D
Coastal lagoons	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)
(a) The d	distance k	between	the offsh	ore proje	ct area ar	nd the de	signated	site is be	yond the	range of	any potei	ntial LSE.					1	





Site 1	.11														
Name of European Site: Ċ	Östliche D	eutsche	Bucht SF	Α											
Distance to Norfolk Vanguard (km) 3	45														
Site Features	Likely e	ffect(s) c	of Norfol	k Vangu	ard										
	Collisio	n mortal	ity	[Displacer	nent/Distu	urbance	Barri	er Effect			Cumula	tive/In-co	ombinati	on
	с	0	D	(2	0	D	С	0	[C	С	0	D	
Nonbreeding seabirds (razorbill, fulmar, black-throated diver, red-throated diver, herring gull, common gull, lesser black- backed gull, great black-backed gull, little gull, black-headed gull <i>Chroicocephalus</i> <i>ridibundus</i> , common scoter, great crested grebe, kittiwake, common tern, Arctic tern, sandwich tern, gannet, guillemot) (a) Migrations of birds from this SPA are not only because the sites are 345km the North Sea towards northern bree	apart, bu	t also be	cause se	e numbe abirds a	nd wate	birds fror	n this SPA	-	guard site	e relative			-		llations,
(b) The predicted effect attributable to N features at Östliche Deutsche Bucht S		nguard is	s so smal	l that it	would no	ot significa	intly cont	ribute to	o or alter	the ove	rall in-co	mbinatio	n assessn	nent for	hese
Site Features	Likely e	ffect(s) c	of Norfol	k Vangu	ard										
	Underv	vater noi	se	Vessel	Interact	ions	Indirect	effects	on prey	Cha	nges to v quality	vater	In	combina	tion
	С	0	D	С	0	С	0	D	С	0	С	0	D	С	0
Marine Mammals			1												
Harbour porpoise	N(c)	N(c)	N(c)				N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)
	1		N(c)								_				





Site	111														
Name of European Site:	Östliche D	eutsche	Bucht SP	Α											
Distance to Norfolk Vanguard (km)	345														
Harbour seal	N(c)	N(c)	N(c)				N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)
c) The distance between the pote	ntial impact	range of	Norfolk	Vanguard	l and the	extent of	any effe	ect on inc	lividuals	from this	site wou	ld result	in no pot	ential fo	r LSE.

Site Name of European Site:	112 Ouessa	ant-Mole	ene SAC												
Distance to Norfolk Vanguard (km)	698														
Site Features	<u> </u>			lk Vangu			1			1			1		
	Under	water no	oise	Vessel I	nteractio	ns	Indirec	t effects o	on prey	Change quality	s to wate	r	In comb	bination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact i	range of	Norfolk	Vanguaro	and the	extent of	any effe	ct on indi	viduals fr	om this s	ite would	result in	no poten	tial for LS	E.





Collision wortality Displacewort/Disturbance Barrier Effect Cumulative/In-combination C O D C O D C O D Nonbreeding red-throated divers N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (e) Y (f) N (d) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (d)	Site 1	13												
Likely effect(s) of Norbit Vanuard Collision wortality Displacewort/Disturbance Barrier Effect Cumulative/In-colsman Collision wortality Displacewort/Disturbance Barrier Effect Cumulative/In-colsman Nonbreeding red-throated divers D C O D C O D C O D C O D C O D C O D C O D C O D C O D C O O D C O O C O O D C O O C O O O C C O O <th colspan<="" th=""><th>Name of European Site: C</th><th>outer Thame</th><th>es Estuary S</th><th>PA and pS</th><th>PA extens</th><th>ion</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th>	<th>Name of European Site: C</th> <th>outer Thame</th> <th>es Estuary S</th> <th>PA and pS</th> <th>PA extens</th> <th>ion</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	Name of European Site: C	outer Thame	es Estuary S	PA and pS	PA extens	ion							
Collision mortality Displacement/Disturbance Barrier Effect Cumulative/In-combination C O D C D C D C D <td< th=""><th>Distance to Norfolk Vanguard (km) 2</th><th>1</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>	Distance to Norfolk Vanguard (km) 2	1												
CODCODCODCODCODCODDNonbreeding red-throated diversN (a)N (a)N (a)N (b)Y (f)N (c)N (a)N (a)N (a)N (e)Y (f)N (c)Breeding little tern and common ternN (d)N	Site Features	Likely et	ffect(s) of N	orfolk Van	guard									
Nonbreeding red-throated divers N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) Y (f) N (c) N (a) N (a) N (b) N (c) N (b) N (c) N (b) N (b) N (c) N (c) N (b) N (c)		Collisior	n mortality		Displace	ment/Dist	urbance	Barrier	Effect		Cumula	tive/In-cor	nbination	
Breeding little tern and common tern N (d) N (d)		С	0	D	с	0	D	С	0	D	С	0	D	
 (a) Red-throated divers fly close to the sea surface and are therefore at extremely low risk of collisions or barrier effects. Survey data indicate a negligible risk of collision mortality or of a barrier effect. (b) Great Yarmouth may be used as a port for construction vessels for the Norfolk Vanguard site; this port is located very close to the northern extent of the SPA however is outside the main concentrations of red-throated divers. This, together with the extent of existing vessel movements in the area means the addition of construction traffic as a result of Norolk Vanguard will make little difference to the existing baseline and therefore the potential for LSE is considered to be negligible. (c) Displacement/Disturbance during operation and decommissioning is considered negligible as the increase in vessel traffic within the SPA due to Norfolk Vanguard will be negligible compared to the existing baseline. (d) Little tern and common tern have maximum foraging ranges from colonies of 11km and 30km respectively (Thaxter et al. 2012), which suggests there could be 	Nonbreeding red-throated divers		N (a)		N (b)	Y (f)	N (c)	N (a)	N (a)	N (a)	N (e)	Y (f)	N (e)	
 collision mortality or of a barrier effect. (b) Great Yarmouth may be used as a port for construction vessels for the Norfolk Vanguard site; this port is located very close to the northern extent of the SPA however is outside the main concentrations of red-throated divers. This, together with the extent of existing vessel movements in the area means the addition of construction traffic as a result of Norolk Vanguard will make little difference to the existing baseline and therefore the potential for LSE is considered to be negligible. (c) Displacement/Disturbance during operation and decommissioning is considered negligible as the increase in vessel traffic within the SPA due to Norfolk Vanguard will be negligible compared to the existing baseline. (d) Little tern and common tern have maximum foraging ranges from colonies of 11km and 30km respectively (Thaxter et al. 2012), which suggests there could be 	Breeding little tern and common tern		N (d)		N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	
	 collision mortality or of a barrier eff (b) Great Yarmouth may be used as a p however is outside the main concer construction traffic as a result of No negligible. (c) Displacement/Disturbance during o will be negligible compared to the e (d) Little tern and common tern have m 	ect. ort for cons trations of r rolk Vangua peration and xisting base aximum for	truction ves red-throate rd will mak d decommis line. aging range	ssels for the d divers. The little diff ssioning is es from col	e Norfolk his, togeth erence to considere onies of 1	Vanguard s ler with the the existin d negligible 1km and 3	site; this po e extent of g baseline e as the inc Okm respe	ort is locat existing v and there crease in v ctively (Th	ed very clo essel move fore the pc essel traffie axter et al.	se to the n ements in t otential for c within th 2012), wh	orthern ex he area m LSE is con e SPA due hich sugges	tent of the eans the a sidered to to Norfolk ts there co	e SPA ddition of be Vanguard uld be	

these features at Outer Thames Estuary SPA.

(f) Following advice from Natural England it is considered that Operations and Maintenance vessels may disturb red-throated divers whilst transiting through the SPA therefore an LSE cannot be screened out.





Site Name of European Site:	114 Panacl	he De La	Gironde	e Et Platea	au Roche	ux De Co	rdouan (Système I	Pertuis Gi	ronde) S/	AC				
Distance to Norfolk Vanguard (km)	837														
Site Features	Likely	effect(s)	of Norfo	olk Vangu	ard										
	Under	water no	oise	Vessel I	nteractio	ons	Indirec	t effects o	on prey	Change quality	s to wate	er	In comb	oination	
	С	0	D	С	0	D	С	0	D	C	0	D	С	0	D
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)

Site	115											
Name of European Site:	Papa Sto	our SPA										
Distance to Norfolk Vanguard (km)	851											
Site Features	Likely	effect(s) of	Norfolk Va	nguard								
	Collis	ion mortality	1	Displace	ement/Dis	turbance	Barrier	Effect		Cumula	tive/In-cor	nbination
	с	0	D	с	0	D	С	0	D	С	0	D
Breeding Arctic tern		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Breeding ringed plover		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)
 (a) Papa Stour SPA is beyond maxim Norfolk Vanguard site is very sm (b) Ringed plovers breeding in Scotl 	all relative	to BDMPS.										-

reach the Norfolk Vanguard site.
 (c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Papa Stour SPA.





Site	116											
Name of European Site:	Papa We	stray (North	Hill and H	olm) SPA								
Distance to Norfolk Vanguard (km)	778											
Site Features	Likely	effect(s) of	Norfolk Var	nguard								
	Collisi	on mortality	1	Displace	ement/Dis	turbance	Barrier	Effect		Cumula	tive/In-cor	mbination
	С	0	D	С	0	D	С	0	D	С	0	D
Breeding Arctic tern		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
Breeding Arctic skua		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
 (a) Papa Westray SPA is beyond the migrating through the Norfolk Va (b) The predicted effect attributable these features at Papa Westray S 	anguard site to Norfolk	are likely to	be extrem	nely small	relative to	BDMPS.	-		-			-





Site				117																				
Name of European	Site:			Past	on Gre	eat Ba	rn SAC																	
Distance to Norfoll	k Vang	uard (km)	2.9																				
	Likely	effect	(s) of N	lorfolk	Vangu	ard																		
	Direct	effect	s (e.g.	Direct	effect	s on	Impac	ts fron	n	Distur	bance	due	Impac	ts fron	n	Impac	ts fron	า	Impac	ts fron	n light	Impac	ts fron	ก
	habita	t loss)	on	ex-sitı	u habit	ats	altera	tions to	0	to gro	undwa	ater /	noise	disturk	bance	changi	ng air		distur	bance		visual	disturl	bance
	land w	vithin t	he SAC	functi	onally		geolog	gy and	land	hydro	logy cł	nanges				quality	/							
	bound	ary		conne	cted to	o the	contai	ninatio	on															
				SAC																				
	С	0	D	С	0	D	с	0	D	с	0	D	с	0	D	С	0	D	с	0	D	с	0	D
Barbastelle bats	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(b)	N(b)	N(b)	Y(c)	Y(c)	Y(c)	N(d)	N(d)	N(d)	N(d)		N(d)	Y(e)	Y(e)	Y(e)	N(d)	N(d)	N(d)

a) Paston Barn SAC is located 2.9km from the onshore project area; the SAC is therefore beyond the range of direct impact.

b) Barbastelle bats are associated with hedgerow, scrub, woodland and watercourse habitats which will not be affected by changes to the geology or land contamination regime.

c) Watercourses identified as core foraging areas for the Paston Great Barn barbastelle colony (i.e. drains at Ridlington Street) may be subject to trenching works during the project construction phase, and as such there may be effects upon this ex-situ habitat. Therefore LSE cannot be ruled out and these effects have been screened in for further assessment.

d) Qualifying features of Paston Great Barn SAC are not sensitive to potential effects from noise, visual disturbance or air quality and so indirect effects upon these qualifying features will not occur and these effects have been screened out of further assessment.

e) Barbastelle commuting and foraging habitat is located within the potential zone of influence of lighting from the onshore infrastructure and therefore LSE cannot be ruled out at the screening stage.





Site 2	18											
Name of European Site:	entland Firth	Islands SP/	4									
Distance to Norfolk Vanguard (km)	16											
Site Features	Likely ef	fect(s) of N	Iorfolk Van	guard								
	Collisior	mortality		Displace	ment/Dist	urbance	Barrier I	Effect		Cumula	tive/In-cor	nbination
	С	0	D	С	0	D	С	0	D	С	0	D
Breeding Arctic tern		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
 (a) Pentland Firth Islands SPA is beyo through the Norfolk Vanguard site (b) The predicted effect attributable these features at Pentland Firth Is 	is likely to be o Norfolk Van	extremely	small relat	ive to BDN	/IPS.	-						

Site Name of European Site:	119 Pertuis	Charen	tais SAC												
Distance to Norfolk Vanguard (km)	767														
Site Features	Likely e	effect(s)	of Norfo	lk Vangu	ard										
	Under	water no	oise	Vessel I	nteractio	ns	Indirect	t effects o	on prey	Change	s to wate	r	In comb	ination	
										quality					
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact i	range of	Norfolk	Vanguaro	and the	extent of	fany effe	ct on indi	viduals fr	om this s	te would	result in	no poten	tial for LS	,E.





Site 1	20											
Name of European Site: F	ortsmouth	Harbour SP	Α									
Distance to Norfolk Vanguard (km) 3	26											
Site Features	Likely e	ffect(s) of N	Iorfolk Van	guard								
	Collisio	n mortality		Displace	ement/Dist	urbance	Barrier	Effect		Cumula	tive/In-con	nbination
	С	0	D	С	0	D	С	0	D	С	0	D
Nonbreeding brent goose, dunlin, black- tailed godwit, red-breasted merganser		N (a)		N (a)	N (a)	N (b)	N (b)	N (b)				
 (a) Survey data show little or no evide to result in negligible numbers pas 					curring in	the Norfoll	Vanguaro	d site, and	migrations	of birds fro	om this SP/	A are likely
(b) The predicted effect attributable t these features at Portsmouth Hark		anguard is s	o small tha	it it would	not signifi	cantly cont	ribute to c	or alter the	overall in-	combinatio	on assessm	ent for

Site Name of European Site:	121 Presqu	'ile De C	Crozon S	AC											
Distance to Norfolk Vanguard (km)	700														
Site Features	Likely	effect(s)	of Norfo	olk Vangu	ard										
	Under	water no	oise	Vessel	Interactio	ns	Indirec	t effects o	on prey	Change quality	s to wate	r	In comb	bination	
	С	0	D	С	0	D	С	0	D	C	0	D	С	0	D
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguar	d and the	extent of	f any effe	ct on indi	ividuals fr	rom this s	ite would	result in	no poten	tial for LS	E.





Site 122	1											
Name of European Site: Rar	nsar-Gebie	et S-H Watt	enmeer ur	nd angren:	zende Küst	engebiete	SPA					
Distance to Norfolk Vanguard (km) 365	;											
Site Features	Likely ef	ect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Dist	urbance	Barrier B	ffect		Cumulat	ive/In-com	bination
	С	0	D	С	0	D	С	0	D	С	0	D
Breeding seabirds including common gull, lesser black-backed gull, great black- backed gull, Mediterranean gull, black- headed gull, little tern, common tern, Arctic tern, Sandwich tern, black tern, gull- billed tern <i>Gelochelidon nilotica</i>		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (e)	N (e)	N (e)
Nonbreeding seabirds including razorbill, black-throated diver, red-throated diver, common gull, lesser black-backed gull, great black-backed gull, Mediterranean gull, black-headed gull, little gull, kittiwake, little tern, common tern, Arctic tern, Sandwich tern, cormorant, guillemot		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (e)	N (e)	N (e)
Waterbirds including pintail, shoveler, teal, wigeon, mallard, garganey <i>Anas</i> <i>querquedula</i> , grey heron <i>Ardea cinerea</i> , turnstone, bittern, brent goose, barnacle goose, sanderling, dunlin, curlew sandpiper, ringed plover, Kentish plover <i>Charadrius alexandrinus</i> , Bewick's swan, whooper swan, snipe <i>Gallinago gallinago</i> , oystercatcher, black-winged stilt <i>Himantopus himantopus</i> , bar-tailed godwit, black-tailed godwit, common		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (e)	N (e)	N (e)





	122											
Name of European Site:	Ramsar-Gebie	et S-H Watt	enmeer un	id angrenz	ende Küste	engebiete	SPA					
Distance to Norfolk Vanguard (km)	365											
Site Features	Likely eff	ect(s) of N	orfolk Vang	guard								
	Collision	mortality		Displace	ment/Distu	irbance	Barrier E	ffect		Cumulat	tive/In-con	nbination
	С	0	D	с	0	D	с	0	D	С	0	D
scoter, red-breasted merganser, curlew, whimbrel, ruff, spoonbill, golden plover, grey plover, red-necked grebe <i>Podiceps</i> <i>grisegena</i> , black-necked grebe <i>Podiceps</i> <i>nigricollis</i> , avocet, eider, shelduck, greenshank, redshank, lapwing												
Terrestrial birds (various species)		N (d)		N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (d)	N (d)
 (a) The Norfolk Vanguard site is beyo Proportions of these populations (b) Migrations of birds from this SPA populations, not only because of second to the North Sea towards not (c) Survey data show little or no evid result in negligible numbers passi 	migrating thro are likely to ro the distance, l orthern breed ence of these	bugh the N esult in neg but also be ing ground waterbird	orfolk Vang gligible num cause seab s rather tha features of	guard site a hbers passi hirds and w an across t ccurring in	are likely to ing through aterbirds f the souther the Norfol	o be extrer n the Norfo rom this Si rn North Se k Vanguar	mely small olk Vanguar PA are likel ea. d OWF site	relative to rd site rela y to migra s, and mig	BDMPS. tive to the te predomi rations of b	size of BD nantly alo pirds from	MPS regio ong the cor this SPA a	nal ntinental re likely to

- (d) Terrestrial birds from this SPA are very unlikely to migrate to the UK; those that do migrate are more likely to follow the west European flyway along the continental coast.
- (e) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at this SPA.





			Recifs Gı		lanc No	- 640												
Name of European Site			Recits Gi	IS-INEZ D	lanc-ive	Z SAC												
Distance to Norfolk Var	iguard (km)	209															
Marine Mammals																		
Site Features	Likely	effect(s)	of Norfo	olk Vangı	uard													
	Under	water n	oise	Vessel	Interact	tions	Indired prey	ct effect	s on	Change quality	es to wa	ater	In com	nbinatio	า			
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D			
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)			
Harbour (common) seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)	-		
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)			
Benthic Habitats	1		1											1				
Site Features	Perma	nent los	S	Tempo disturt	orary phy bance	/sical		ering du sed susp ent			obilisati ninate o ents		Under vibrati		oise and	In com	binatior	1
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Sandbanks which are slightly covered by sea water all the time	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b
Reefs	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b





Site			124															
Name of European Site	:		Ridens e	t dunes l	hydrauli	ques du	detroit	du Pas-d	e-Calais	SAC								
Distance to Norfolk Var	nguard (km)	217															
Marine Mammals																		
Site Features	Likely	effect(s)	of Norfo	olk Vangu	uard													
	Under	water n	oise	Vessel	Interact	tions	Indired prey	t effects	on	Change quality	es to wa	ter	In com	Ibinatio	า			
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D			
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)			
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)	-		
Benthic Habitats	1	1	1		1	1			1					1				
Site Features	Perma	nent los	S	Tempo disturb	orary phy bance	/sical		ering du sed susp ent			obilisatio ninate d ents	n of	Under vibrati		oise and	In com	bination	١
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Sandbanks which are slightly covered by sea water all the time	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)
Reefs	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)

b) The distance between the offshore project area and the designated site is beyond the range of any potential LSE.





Site			1	25																	
Name of Europea	n Site:		R	iver De	erwent	SAC															
Distance to Norfo	lk Vang	uard (k	(m) 2	34																	
	Perma loss	inent h	abitat		oorary p rbance	ohysical	Smoth increa suspe sedim	sed nded	due to		obilisati ninatec ents			water i bration		Electro fields (-	ic	In com	nbinatio	n
	С	0	D	С	0	D	с	0	D	С	0	D	С	0	D	С	0	D	С	0	D
River lamprey	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)
a) The distance b	betwee	n the po	otential	impact	range	of Norfo	olk Vang	guard ar	nd the e	extent o	f any ef	fect fro	m this s	ite wou	uld resu	ult in no	potenti	al for LS	SE.		





				126																				
Name of European	Site:			Rive	r Wen	sum S	AC																	
Distance to Norfol	lk Vang	uard (km)	0																				
	Likely	effect	(s) of N	orfolk	Vangu	lard																		
	Direct habita land w bound	t loss) vithin t	on he SAC	Direct ex-situ functio conne SAC	ı habit onally	ats	Impac altera geolog contai	tions t gy and	o Iand	Distur to gro hydro		ater /	Impac noise			Impact changi quality	ng air		Impac distur		n light	lmpac visual		
	с	0	D	с	0	D	с	0	D	с	0	D	с	0	D	с	0	D	С	0	D	С	0	D
Water courses of olain to montane evels with the Ranunculion fluitantis and Callitricho- Batrachion vegetation	N(a)		N(a)	Y(b)		Y(b)	Y(b)	Y(b)	Y(b)	Y(b)	Y(b)	Y(b)	N(c)		N(c)	N(c)		N(c)	N(c)		N(c)	N(c)		N(c)
Desmoulin's whorl snail	N(a)		N(a)	Y(b)		Y(b)	Y(b)	Y(b)	Y(b)	Y(b)	Y(b)	Y(b)	N(c)		N(c)	N(c)		N(c)	N(c)		N(c)	N(c)		N(c)
White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes	N(a)		N(a)	N(d)		N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)		N(d)	N(d)		N(d)	N(d)		N(d)	N(d)		N(d
Brook lamprey Lampetra planeri	N(a)		N(a)	N(d)		N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)		N(d)	N(d)		N(d)			N(d)			N(d
Bullhead Cottus gobio	N(a)		N(a)	N (d)		N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)		N(d)	N(d)		N(d)	N(d)		N(d)	N(d)		N(d

a) The use of trenchless crossing techniques will ensure no direct effects upon any of the qualifying features of the SAC.

b) There may be potential effects on features which may be located outside of the SAC boundary but are within areas of land which are functionally connected to





Site	126
Name of European Site:	River Wensum SAC
Distance to Norfolk Vanguard (km)	0
the River Wensum SAC, includir	g floodplain and grazing marsh habitat and therefore LSE cannot be ruled out at the screening stage.
c) The qualifying features of the R	iver Wensum SAC are not sensitive to effects arising from these sources.

d) White-clawed crayfish was identified as absent at the trenchless crossing area at Elsing, therefore would not experience impacts associated with the construction in this area. Ex-situ habitats suitable for supporting brook lamprey and bullhead have not been identified within the onshore project area.

Site	127											
Name of European Site:	Ronas Hill	North Roe	e and Tingo	on SPA								
Distance to Norfolk Vanguard (km)	866											
Site Features	Likely ef	^f ect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Distu	urbance	Barrier E	ffect		Cumulat	ive/In-com	bination
	С	0	D	С	0	D	С	0	D	С	0	D
Breeding great skua		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (d)	N (d)	N (d)
Breeding red-throated diver		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (d)	N (d)	N (d)
Breeding merlin		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (d)	N (d)	N (d)

(a) Ronas Hill, North Roe & Tingon SPA is beyond maximum foraging range of great skua so has no breeding season connectivity. The proportion of the population migrating through the Norfolk Vanguard site is likely to be extremely small relative to BDMPS.

(b) Ronas Hill, North Roe & Tingon SPA is beyond maximum foraging range of red-throated diver so has no breeding season connectivity. The proportion of the population migrating through the Norfolk Vanguard site is likely to be extremely small relative to BDMPS.

(c) Merlins from this population are likely to migrate to wintering areas that are predominantly within the UK. A few, mostly young birds, may winter on the European continent so could possibly pass through the Norfolk Vanguard site. However, no merlins have been seen during site specific surveys, and the chances of any from this SPA passing through the site are likely to be extremely low.

(d) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Ronas Hill, North Roe & Tingon SPA.





Site 1	28											
Name of European Site: R	ousay SPA											
Distance to Norfolk Vanguard (km) 7	5 3											
Site Features	Likely ef	fect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Distu	urbance	Barrier E	ffect		Cumulat	ive/In-com	nbination
	С	0	D	С	0	D	С	0	D	С	0	D
Breeding seabird assemblage including as named features guillemot, Arctic skua, Arctic tern, kittiwake, fulmar		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
 (a) Rousay SPA is beyond maxin migrating through the Norfc (b) The predicted effect attribut assessment for these feature 	lk Vanguarc able to Nor	l site are sr folk Vangu	nall relative	e to BDMP	S.		-					lations





Site Name of European Site:	129 Sandb	anker ud	d for Tho	rsminde	SAC										
Distance to Norfolk Vanguard (km)	492														
Site Features	· · · ·	effect(s) water no		olk Vangu Vessel I	ard nteractio	ons	Indirec	t effects o	on prey	Change	s to wate	er	In comb	pination	
	С	0	D	C	0	D	С	0	D	C	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)

Site Name of European Site:	130 Sandba	anker ud	l for Thy	boron SA	۱C										
Distance to Norfolk Vanguard (km)	523														
Site Features		effect(s) water no		olk Vangu Vessel I	ard nteractic	ins	Indirec	t effects (on prey	Change quality	s to wate	er	In com	pination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Harbour porpoise a) The distance between the potentia											ite would				SE.





Site Name of European Site:	131 SBZ 1 /	/ ZPS 1 S	AC (off N	lieuwpoo	ort)										
Distance to Norfolk Vanguard (km)	170														
Site Features	Likely	effect(s)	of Norfc	olk Vangu	ard										
	Under	water no	oise	Vessel I	nteractic	ons	Indirec	t effects o	on prey	Change quality	s to wate	er	In comb	oination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	and the	extent of	any effe	ct on indi	ividuals fr	om this s	ite would	l result in	no poten	tial for LS	Ε.





Site Name of European Site:	132 SBZ 2 /	ZPS 2 S	AC												
Distance to Norfolk Vanguard (km)	156														
Site Features	Likely e	effect(s)	of Norfc	olk Vangu	ard										
	Underv	water no	oise	Vessel I	nteractio	ns	Indirect	t effects o	on prey	Change	s to wate	r	In comb	oination	
										quality					
	С	0	D	C	0	D	C	0	D	С	0	D	C	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	d and the	extent of	any effe	ct on indi	viduals fr	om this s	ite would	result in	no poten	tial for LS	E.

Site Name of European Site:	133 SBZ 3 ,	/ ZPS 3 S	AC												
Distance to Norfolk Vanguard (km)	153														
Site Features	Likely	effect(s)	of Norfo	olk Vangu	ard										
	Under	water no	oise	Vessel I	Interactio	ns	Indirec	t effects	on prey	Change	s to wate	er	In comb	bination	
										quality					
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	⁻ Norfolk	Vanguar	d and the	extent o	f any effe	ct on ind	ividuals fr	om this s	ite would	result in	no poten	tial for LS	SE.





Site Name of Eu	ropean S	ite:		134 Scanne	r Pockma	ark SAC												
Distance to	Norfolk	Vanguard	d (km)	591														
Site	Likely e	ffect(s) o	f Norfolk	Vanguar	d													
Features	Perma	nent loss	i	Tempo disturb	orary phy Dance	/sical		ering du sed susp ent		-	obilisatio ninated ents	n of		water no bration	oise	In com	bination	
	С	0	D	с	0	D	с	0	D	С	0	D	с	0	D	С	0	D
Submarine structures made by leaking gases	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)





Site Name of European Site:	135 Schlesv	wig-Hols	teinisch	es Elbastı	uar und a	ngrenzen	de Flach	en SAC							
Distance to Norfolk Vanguard (km)	388														
Site Features	Likely effect(s) of Norfolk Vanguard Underwater noise Vessel Interactions Indirect effects on prey Changes to water quality In combination														
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour seal a) The distance between the potentia	N(a) I impact i	N(a) range of	N(a) Norfolk	N(a) Vanguarc	N(a) and the	N(a) extent of	N(a) any effe	N(a) ct on indi	N(a) viduals fr	N(a) om this s	ite would	N(a) result in	N(a) no poten	N(a) tial for LS	N(a) E.

Site 13	6											
Name of European Site: Se	evogelschu	tzgebiet Ho	elgoland SF	PA								
Distance to Norfolk Vanguard (km) 343												
Site Features	Likely eff	ect(s) of N	orfolk Vang	guard								
	Collision	mortality		Displacer	ment/Distu	irbance	Barrier E	ffect		Cumulati	ve/In-com	bination
	С	O D C O D C O D C O D C O D C O D C O D C O D C O D C O D C O D C O D C O D C D D C D D C D D D D D D D D D D D D D D										
Breeding seabird assemblage including as named features razorbill, fulmar, herring gull, lesser black-backed gull, kittiwake, gannet, guillemot		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Nonbreeding seabird assemblage including razorbill, black-throated diver, red-throated diver, common gull, lesser black-backed gull, little gull, kittiwake, common scoter, red-necked grebe, eider,		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (c)	N (c)	N (c)





Site	136
Name of European Site:	Seevogelschutzgebiet Helgoland SPA
Distance to Norfolk Vanguard (km)	343
common tern, Arctic tern, Sandwich gannet, guillemot	
being within theoretica	s breeding on Helgoland show these birds do not travel in the direction of or as far as the Norfolk Vanguard site despite this site aximum foraging range of gannet. Norfolk Vanguard is beyond the maximum foraging range of other seabird species at oland SPA. Proportions of these populations migrating through Norfolk Vanguard are likely to be very small relative to BDMPS
BDMPS regional popula	is SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site during migration relative to the size of ns, not only because the sites are 343km apart, but also because nonbreeding seabirds from this SPA are likely to migrate continental coast of the North Sea towards northern breeding grounds rather than across the southern North Sea.
	utable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment gelschutzgebeit Helgoland SPA.

Site Name of European Site:	137 Skage	ns Gren	og Skage	errak SAC											
Distance to Norfolk Vanguard (km)	680														
Site Features	Likely effect(s) of Norfolk Vanguard														
	Under	water no	oise	Vessel I	nteractio	ns	Indirec	t effects	on prey	Change quality	es to wate	er	In comb	bination	
	С	0	D	C	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N(a) N(a) N(a) N(a) N(a) N(a) N(a) N(a)												N(a)		
a) The distance between the potentia	l impact	range of	f Norfolk	Vanguaro	and the	extent of	f any effe	ct on ind	ividuals fr	om this s	ite would	l result in	no poten	tial for LS	E.





Site	138														
Name of European Site:	Solent & So	outhampto	n Water SP	A & Ram	sar										
Distance to Norfolk Vanguard (km)	331														
Site Features	Likely e	fect(s) of N	Iorfolk Van	guard											
	Collision	mortality		Displace	ement/Dist	urbance	Barrier	Effect		Cumula	tive/In-cor	mbination			
	С	0	D	С	0	D	С	0	D	С	0	D			
Nonbreeding teal, brent goose, ringed plover, black-tailed godwit		N (a) N (b) N (c)													
Breeding Mediterranean gull		N (b) N (b) <th< td=""></th<>													
Breeding little tern, common tern, roseate tern, Sandwich tern		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)			
 (a) Survey data show little or birds from this site are lik (b) No Mediterranean gulls v the SPA are unlikely to m gulls as 20km, so birds from 	ely to result in vere recorded igrate through om this SPA wi	negligible in the Norf the Norfol I not have	numbers p olk Vangua k Vanguarc connectivit	assing thr Ird site du I site. Tha I y with the	ough the N ring bird su xter et al. (Norfolk V	lorfolk Var urveys. Thi 2012) repo anguard si	nguard site s species is ort the max te during b	s scarce in kimum for preeding.	England, a aging range	lthough ind e of breedi	creasing. B ng Medite	irds from rranean			
 (c) Little tern, common tern, (Thaxter et al. 2012), so t to forage in coastal water (d) The predicted effect attri 	here is no con rs rather than	nectivity be offshore. Tl	etween the herefore, co	SPA and to ollision ris	the Norfolk k, displace	Vanguard ment and	site which barrier effe	i are 331ki ects can be	m apart. Fu e excluded.	rthermore	, these spe	-			

(d) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Solent & Southampton Water SPA and Ramsar.





Site Name of European Site:	139 Southe	ern Nort	h Sea cS	AC											
Distance to Norfolk Vanguard (km)	0														
Site Features	· · · ·	xely effect(s) of Norfolk Vanguard inderwater noise Vessel Interactions Indirect effects on prey Changes to water inderwater noise Incombination													
	С	0	D	С	0	D	С	0	D	quality C	0	D	С	0	D
Harbour porpoise	Y(a)	Y(a)	Y(a)	Y(a)	Y(a)	Y(a)	Y(a)	Y(a)	Y(a)	Y(a)		Y(a)	Y(a)	Y(a)	Y(a)
a) The offshore project area is within associated with this cSAC.	the cSAC	and the	erefore L	SE cannot	be ruled	out at th	ie screen	ing stage.	lt is assu	med that	all harbo	ur porpo	ise in this	area are	

Site 1	40													
Name of European Site: S	Abb's Hea	d to Fast Ca	astle SPA											
Distance to Norfolk Vanguard (km) 438														
Site Features	Likely effect(s) of Norfolk Vanguard													
	Collision	ollision mortality Displacement/Disturbance Barrier Effect Cumulative/In-combination												
	С	O D C O D C O D C O D												
Breeding seabird assemblage including as named features herring gull, kittiwake, razorbill, guillemot, shag		N (a)		N (a)	N (b)	N (b)	N (b)							
these populations migrating(b) The predicted effect attribut	 (a) St Abbs Head to Fast Castle SPA is beyond maximum foraging range of designated seabird species so has no breeding season connectivity. Proportions of these populations migrating through the Norfolk Vanguard site are likely to be very small relative to BDMPS. 													





Site Name of European Site:	141 Steing	rund SA	C												
Distance to Norfolk Vanguard (km)	353														
Site Features	-	effect(s) water no		Ik Vangu Vessel I C	ard nteractio O	ns D	Indirec	t effects	on prey	Change quality C	s to wate	er D	In comb	oination	D
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Harbour porpoise a) The distance between the potentia	N(a) I impact	N(a) range of	N(a) Norfolk	N(a) Vanguaro	N(a) and the	N(a) extent of	N(a) f any effe	N(a) ect on ind	N(a) ividuals fr	N(a) om this s	ite would	N(a) result in	N(a) no poten	N(a) tial for LS	N(a) SE.

Site Name of European Site:	142 Store F	Rev SCI													
Distance to Norfolk Vanguard (km)	654														
Site Features		ely effect(s) of Norfolk Vanguard													
	Underv	water no	oise	Vessel I	nteractio	ons	Indirec	t effects o	on prey	Change quality	s to wate	r	In comb	pination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguard	d and the	extent of	any effe	ct on indi	viduals fr	om this s	ite would	result in	no poten	tial for LS	SE.





Site 2	43											
Name of European Site:	tour & Orw	ell Estuarie	es SPA and	Ramsar								
Distance to Norfolk Vanguard (km)	19											
Site Features	Likely e	ffect(s) of N	Iorfolk Van	guard								
	Collisio	n mortality		Displace	ement/Dist	urbance	Barrier B	Effect		Cumula	tive/In-coi	nbination
	С	0	D	С	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named features pintail, wigeon, gadwall, turnstone, bren goose, goldeneye, dunlin, knot, ringed plover, black-tailed godwit, curlew, cormorant, grey plover, great crested grebe, shelduck, redshank, lapwing		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Breeding avocet		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (c)	N (c)	N (c)
 (a) Survey data show little or n SPA are likely to result in ne (b) Survey data show no evider this SPA are likely to result i (c) The predicted effect attribution 	gligible nun Ice of Stour n negligible	nbers passi & Orwell E numbers p	ng through stuaries SP assing thro	the Norfo A feature ough the N	olk Vanguai avocet occ lorfolk Van	rd site. urring in th guard site.	ne Norfolk	Vanguard	OWF sites,	and migra	ations of bi	

assessment for these features at Stour & Orwell Estuaries SPA and Ramsar.





Site	144											
Name of European Site:	Sumburgh I	Head SPA										
Distance to Norfolk Vanguard (km)	791											
Site Features	Likely ef	fect(s) of N	orfolk Van	guard								
	Collision	mortality			Cumulat	tive/In-cor	nbination					
	с	0	D	с	0	D	С	0	D	С	0	D
Breeding seabird assemblage including as named features kittiwake, fulmar, guillemot, Arctic tern		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
 (a) Sumburgh Head SPA is beyor populations migrating throug (b) The predicted effect attribute 	h the Norfo	olk Vangua	rd site are	likely to b	e very sma	ll relative t	o BDMPS.	-				ese

Site Name of European Site:	145 Sydlige	e Nordsø	SAC												
Distance to Norfolk Vanguard (km)	367														
Site Features	Likely e	effect(s)	of Norfo	lk Vangu	ard										
	Under	water no	oise	Vessel I	nteractio	ns	Indirect	t effects o	on prey	Change	s to wate	r	In comb	ination	
										quality					
	C	0	D	С	0	D	C	0	D	C	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potential	impact	range of	Norfolk	Vanguard	and the	extent of	any effe	ct on ind	ividuals fr	om this s	ite would	result in	no poten	tial for LS	ε.





Enhancing Society Together															
Site		14	6												
Name of European Sit	te:	Sy	lter Außer	nriff SCI											
Distance to Norfolk Va	anguard	(km) ³¹	1												
Ornithology															
Site Features	Likely e	ffect(s) of	Norfolk V	anguard											
				Collisio	n mortality	/	Displace	ement/Dis	turbance	Barrier	Effect		Cumula combin	-	
				С	0	D	С	0	D	С	0	D	С	0	D
throated diver, red-the lesser black-backed gu little gull, gannet, kittir tern, Sandwich tern, g Marine mammals	ull, great wake, co	black-back	ked gull,												
Site Features	Likely e	ffect(s) of	Norfolk V	anguard											
	Underw	vater noise	9	Underw	ater noise	2	Underw	ater noise	!	Underw	ater noise	9	Underv	vater noise	!
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)		N (c)	N (c)	N (c)	N (c)
Grey seal	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)		N (c)	N (c)	N (c)	N (c)
Harbour seal	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)		N (c)	N (c)	N (c)	N (c)



Site



Name of European Site:

Sylter Außenriff SCI

146

Distance to Norfolk Vanguard (km) ³¹¹

Fish																					
Site	Likely	effect(s) of Nor	folk Var	guard																
Features	Perma loss	nent ha	abitat	Tempo disturi	orary pł oance	nysical	Smoth increa susper sedim	nded	ue to	-	obilisati minated ents			water n ibration		Electro fields	omagne (EMF)	tic	In com	nbinatio	n
	С	0	D	с	0	D	С	0	D	с	0	D	с	0	D	с	0	D	с	0	D
River lamprey	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)
Twaite shad	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)

a) Migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site relative to the size of BDMPS regional populations, not only because the sites are 311km apart, but also because nonbreeding seabirds from this SPA are likely to migrate predominantly along the continental coast of the North Sea towards northern breeding grounds rather than across the southern North Sea.

b) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Sylter Außenriff SPA.

c) The distance between the potential impact range of Norfolk Vanguard and the extent of any effect on individuals from this site would result in no potential for LSE.





Site	147											
Name of European Site:	Teesmouth	and Clevela	nd Coast S	PA and Ra	msar							
Distance to Norfolk Vanguard (km)	289											
Site Features	Likely e	ffect(s) of N	Iorfolk Van	guard								
	Collisio	n mortality		Displace	ement/Dist	urbance	Barrier E	ffect		Cumula	tive/In-cor	nbination
	С	0	D	С	0	D	С	0	D	С	0	D
Nonbreeding knot, redshank		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (d)	N (d)	N (d)
Nonbreeding Sandwich tern		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (d)	N (d)	N (d)
Breeding little tern		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (c)

(a) Survey data show little or no evidence of Teesmouth & Cleveland Coast SPA features knot or redshank occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(b) Nonbreeding Sandwich terns at Teesmouth & Cleveland Coast SPA may migrate between the SPA and wintering areas off west Africa. This could take them near to Norfolk Vanguard. However, very few terns of any species were seen in the Norfolk Vanguard site during bird surveys, and the Sandwich tern tends to migrate close to the coast where that is possible, so there are unlikely to be significant numbers reaching the Norfolk Vanguard site. The few that do will have a very low collision risk due to their generally low flight height and displacement/barrier effects will be negligible in the context of a migration of thousands of kilometres.

- (c) Breeding little tern has a maximum foraging range of 11km from colonies (Thaxter et al. 2012), so would have no connectivity with Norfolk Vanguard. Migrating little terns are considered to be 'extremely coastal on passage with very few sightings in open ocean or inland' (Forrester et al. 2007), so are unlikely to pass through the Norfolk Vanguard site.
- (d) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Teesmouth & Cleveland Coast SPA and Ramsar.





Site	148											
Name of European Site:	Thames Est	ary and M	arshes SPA	and Ram	sar							
Distance to Norfolk Vanguard (km)	188											
Site Features	Likely e	ffect(s) of I	Norfolk Van	guard								
	Collisio	n mortality		Displace	ement/Dist	urbance	Barrier	Effect		Cumula	tive/In-coi	mbination
	С	О	D	С	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named features dunlin, knot, ringed plover, black-tailed godwit, grey plover, avocet, redshank		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Nonbreeding hen harrier		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (c)	N (c)	N (c)
 (a) Survey data show little or n SPA are likely to result in ne (b) Survey data show no evider numbers passing through t 	egligible nur nce of hen h	nbers passi arrier occu	ng through rring in the	the Norfo Norfolk V	olk Vangua 'anguard si	rd site. te, and mi	grations of	birds from	n this SPA a	re likely to	result in r	negligible

(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Thames Estuary & Marshes SPA and Ramsar.





149												
Thanet Coas	t and Sand	wich Bay SI	PA and Ra	msar								
171												
Likely e	ffect(s) of N	orfolk Van	guard									
Collisio	n mortality		Displace	ement/Dist	urbance	Barrier E	ffect		Cumulat	ive/In-con	nbinatio	
С	0	D	С	0	D	С	0	D	С	0	D	
	N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)	
	N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	
	171 Likely e Collision	Thanet Coast and Sandy 171 Likely effect(s) of N Collision mortality C O N (a)	Thanet Coast and Sandwich Bay SF 171 Likely effect(s) of Norfolk Van Collision mortality C C O N (a)	Thanet Coast and Sandwich Bay SPA and Ray 171 Likely effect(s) of Norfolk Vanguard Collision mortality Displace C O D C N (a) N (a) N (a)	Interset Coast and Sandwich Bay SPA and Ramsar 171 Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/District C O D C O N (a) N (a) N (a) N (a)	Intersection of Sandwich Bay SPA and Ramsar Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Disturbance C O D C O D N (a) N (a) N (a)	Likely effect(s) of Norfolk Vanguard Displacement/Disturbance Barrier E Collision mortality Displacement/Disturbance Barrier E C O D C N (a) N (a) N (a) N (a) N (a)	Intersection of Series Bay SPA and Ramsar Intersection of Series Bay Series	Intersection of Series Bay SPA and Ramsar Intersection of Series Bay Series	Intersection of Sandwich Bay SPA and Ramsar Intersection of Sandwic	Thanet Coast and Sandwich Bay SPA and Ramsar ITI Likely effect(s) of Norfolk Vanguard Collision mortality Displacement/Disturbance Barrier Effect Cumulative/In-con O O Displacement/Disturbance Barrier Effect Cumulative/In-con O O D C O O N (a) D (a) D C Cumulative/In-con O O D C O O O O O O O O O O O O O O O O O O O O O O O O O O O O <th colsp<="" td=""></th>	

(a) Survey data show little or no evidence of Thanet Coast & Sandwich Bay SPA features turnstone or golden plover occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

(b) Breeding little tern has a maximum foraging range of 11km from colonies (Thaxter et al. 2012), so would have no connectivity with the Norfolk Vanguard site. Migrating little terns are considered to be 'extremely coastal on passage with very few sightings in open ocean or inland' (Forrester et al. 2007), so are unlikely to pass through the Norfolk Vanguard site.

(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Thanet Coast & Sandwich Bay SPA and Ramsar.





Site Name of Eui	ropean S	ite:		150 Thanet	Coast SA	C												
Distance to	Norfolk	Vanguaro	d (km)	170														
Site Features		ffect(s) o nent loss	f Norfolk	-	d orary phy	vical	Smoth	ering du	e to	Re- m	obilisatio	n of	Under	water no	Nico	In com	bination	
	renna		,	disturk		Sical		sed susp			ninated			bration	//30	in con	Ibiliation	I
	с	0	D	с	0	D	С	0	D	с	0	D	С	0	D	с	0	D
Sandbanks which are slightly covered by sea water all the time	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)
Mudflats and sandflats not covered by seawater at low tide	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)
Reefs (a) The dis	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)		N (a)	N (a)	N (a)	N (a)





Site151Name of European Site:TheDistance to Norfolk Vanguard (km)3.6	e Broads S	AC										
Site Features	· · ·		Norfolk Var	-								
	Direct e bounda	ffects with ry	iin SAC	Direct e habitat	effects on e s	ex-situ	Indirect bounda	: effects wi iry	thin SAC	Indirect habitats	effects on	ex-situ
	С	0	D	с	0	D	С	0	D	с	0	D
Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara spp.</i>	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	Y (e)	Y (e)	Y (e)	N (b)	N (b)	N (b)
Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	Y (e)	Y (e)	Y (e)	N (b)	N (b)	N (b)
Transition mires and quaking bogs	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	Y (e)	Y (e)	Y (e)	N (b)	N (b)	N (b)
Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [Priority feature]	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	Y (e)	Y (e)	Y (e)	N (b)	N (b)	N (b)
Alkaline fens	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	Y (e)	Y (e)	Y (e)	N (b)	N (b)	N (b)
Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [Priority feature]	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	Y (e)	Y (e)	Y (e)	N (b)	N (b)	N (b)
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)	Y (e)	Y (e)	Y (e)	N (b)	N (b)	N (b)
Desmoulin's whorl snail	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)	Y (e)	Y (e)	Y (e)	N (c)	N (c)	N (c)
Fen orchid	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)	Y (e)	Y (e)	Y (e)	N (c)	N (c)	N (c)





Site	151											
Name of European Site:	The Broads S	SAC										
Distance to Norfolk Vanguard (km)	3.6											
Ramshorn snail	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)	Y (e)	Y (e)	Y (e)	N (c)	N (c)	N (c)

b) The Annex I qualifying features of The Broads SAC are habitats and not mobile species, and as such are restricted primarily to the SAC boundary. As such, these are beyond the range of potential impact.

c) Habitats within the onshore project area and within 5km of The Broads SAC are not suitable for supporting these species.

d) Suitable habitats for supporting otter were recorded within the project area and within 5km of The Broads SAC. Otters have large ranges and may commute from The Broads SAC into the onshore project area and therefore LSE cannot be ruled out at the screening stage.

e) The potential zone of influence for effects arising from local changes in surface and groundwater encompasses watercourses located within 5km of the Broads SAC. Therefore, indirect effects upon qualifying features of The Broads SAC within the onshore project area arising from local changes in surface and groundwater hydrology are screened in for further assessment.

Site	152											
Name of European Site:	The Swale S	SPA & Ram	Isar									
Distance to Norfolk Vanguard (km)	187											
Site Features	Likely ef	fect(s) of N	Iorfolk Van	guard								
	Collision	mortality		Displace	ement/Dist	urbance	Barrier	Effect		Cumula	tive/In-cor	mbination
	С	0	D	С	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named features brent goose, dunlin, redshank		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
(a) Survey data show little or no are likely to result in negligit						-	e Norfolk	Vanguard s	site, and m	igrations o	f birds froi	m this site





(b) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at The Swale SPA and Ramsar.

Site			153															
Name of European Site			The W	/ash and	North N	orfolk C	oast SA(:										
Distance to Norfolk Va	nguard	(km)	80 (33	km from	n offshor	e cable (corridor											
Marine Mammals																		
Site Features	Likely e	effect(s)	of Norfo	olk Vangu	uard													
	Underv	water no	The Wash and North Norfolk Coast SAC 80 (33km from offshore cable corridor) OF Norfolk Vanguard Vessel Interactions/ disturbance at seal haul out sites Indirect effects on prey Changes to water quality In combination D C O D C O D C O D N(a) Y (b) Y (b) N(a) N(b) N(b) <th< td=""><td></td><td></td><td></td></th<>															
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D			
Harbour seal	N(a)	N(a)	N(a)	Y (b)	Y (b)	Y (b)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)			
Benthic Habitats			1			1			-1									
Site Features	Perma	nent los	S			sical	increas	ed susp		contan	ninate o				se and	In com	nbinatior	ו
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Sandbanks which are slightly covered by sea water all the time	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)
Mudflats and sandflats not covered by seawater at low tide	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)
Large shallow inlets and bays	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)





b) Potential for vessel interactions and disturbance at seal haul-out sites if a port to the north of the offshore project area is selected and therefore LSE cannot be ruled out.

Site 15	54											
Name of European Site: Th	ne Wash SI	PA and Rar	nsar									
Distance to Norfolk Vanguard (km) 12	20											
Site Features	Likely eff	ect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Dist	urbance	Barrier E	ffect		Cumulat	ive/In-con	nbination
	С	0	D	С	0	D	С	0	D	С	0	D
Wintering and passage waterbird assemblage including as named features pintail, wigeon, gadwall, pink-footed goose, turnstone, brent goose, goldeneye, sanderling, dunlin, knot, Bewick's swan, oystercatcher, bar-tailed godwit, black-tailed godwit, common scoter, curlew, grey plover, shelduck, redshank		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Breeding little tern, common tern		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)

(b) Little tern and common tern have maximum foraging ranges from colonies of 11km and 30km respectively (Thaxter et al. 2012), so there is no connectivity between the SPA and Norfolk Vanguard site which are 120km apart. Furthermore, these species tend to forage in coastal waters rather than offshore. Therefore, collision risk, displacement and barrier effects can be excluded.

(c) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at The Wash SPA and Ramsar.





Site Name of European Site:	155 Thybor	on Sten	volde S(21	/anguard essel Interactions Indirect effects on prey quality Changes to water quality In combination of the com										
Distance to Norfolk Vanguard (km)	506														
Site Features	Likely e	effect(s)	of Norfo	lk Vangua	ard										
	Underv	vater no	ise	Vessel I	nteractio	ns	Indirect	effects o	on prey	-		r	In comb	bination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact ı	ange of	Norfolk	Vanguarc	l and the	extent of	any effe	ct on indi	viduals fr	om this s	ite would	result in	no poten	tial for LS	E.





Site Name of European Site: Distance to Norfolk Vanguard (km)	156 Tregor 571	Goëlo S	AC												
Site Features		effect(s) water no		olk Vangu Vessel I	ard nteractio	ins	Indirect	effects o	on prey	Change quality	s to wate	r	In comb	oination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	d and the	extent of	f any effe	ct on indi	viduals fr	om this s	te would	result in	no poten	tial for LS	,Е.





Site	157														
Name of European Site:	Troup, Penr	nan and Lio	n`s Heads	SPA											
Distance to Norfolk Vanguard (km)	597														
Site Features	Likely ef	fect(s) of N	orfolk Van	guard											
	Collision	ision mortality Displacement/Disturbance Barrier Effect Cumulative/In-con													
	с	0	D	с	0	D	С	0	D	С	0	D			
Breeding seabird assemblage including as named features razorbill, fulmar, guillemot, kittiwake, herring gull		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)			
 (a) Troup, Pennan & Lion's Head these populations migrating t (b) The predicted effect attributa for these features at Troup, P 	hrough the able to Norf	Norfolk Va olk Vangua	anguard sit and is so sm	e are likely	y to be ver	y small rela	tive to BDI	MPS.	-						

Site Name of European Site:	158 Untere	lbe SCI	of Norfolk Vangua ise Vessel In D C N(a) N(a) N(a) N(a)												
Distance to Norfolk Vanguard (km)	388														
Site Features	Likely e	effect(s)	of Norfo	lk Vangua	ard										
	Underv	water no	oise	Vessel I	nteractio	ns	Indirect	t effects o	on prey	Change quality	s to wate	r	In comb	ination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	limpact	range of	Norfolk	Vanguard	l and the	extent of	any effe	ct on ind	ividuals fr	om this s	ite would	result in	no poten	tial for LS	E.





Site Name of European Site:	159 Untere	ems und	Aussene	ems SCI											
Distance to Norfolk Vanguard (km)	263														
Site Features	· · ·	effect(s) water no		lk Vangu Vessel I	ard nteractio	ns	Indirec	t effects o	on prey	Change quality	s to wate	r	In comb	pination	
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)
a) The distance between the potentia	limpact	range of	Norfolk	Vanguaro	d and the	extent of	any effe	ct on indi	viduals fr	om this si	te would	result in	no poten	tial for LS	E.

Site Name of European Site:	160 Vadeh	avet me	d Ribe Å	, Tved Å (og Varde	Å vest fo	r Varde S	AC									
Distance to Norfolk Vanguard (km)	418																
Site Features	Likely	effect(s)	of Norfc	olk Vangu	ard												
	Under	water no	oise	e Vessel Interactions Indirect effects on prey Changes to water In combination													
			s) of Norfolk Vanguard noise Vessel Interactions Indirect effects on prey Changes to water In combination quality														
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D		
Harbour porpoise	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)		
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)		
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)		
a) The distance between the potentia	l impact	range of	Norfolk	Vanguaro	d and the	extent o	f any effe	ct on ind	ividuals fr	om this s	ite would	l result in	no poten	tial for LS	SE.		





Enhancing Society	/Together																				
Site					161																
Name of Eu	ıropean	Site:			Vlaam	ise Bank	en SAC														
Distance to	Norfoll	Vangu	ard (km	ı)	138																
Marine Ma	mmals																				
Site Feature	es	Li	kely eff	ect(s) of	Norfolk	Vangua	ard														
		U	nderwa	ter nois	е			tions ar t seal ha		Indire	ct effect	s on pre	∋у	Chang	es to wa	ater qua	ility	In cor	nbinati	on	
		С		0	D	с	0		D	С	0	D		С	0	D		С	0	D	
Harbour po	arbour porpoise N (a) N (a				N (a)	N (a)	N (a)		N (a)	N (a)	N (a)	N (a)		N (a)		N (a)		N (a)	N (a)	N (a)	
Harbour sea	arbour seal N (a) N (a)				N (a)	N (a)	N (a)		N (a)	N (a)	N (a)	N (a)		N (a)		N (a)		N (a)	N (a)	N (a)	
Grey seal		N	(a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)	N (a)	N (a)		N (a)		N (a)		N (a)	N (a)	N (a)	
Fish				1	1	1	<u> </u>		1	<u> </u>	<u> </u>	<u> </u>		<u> </u>		1					
Site	Likely	effect(s) of Nor	folk Van	guard																
Features	Perma loss	inent h	abitat	Tempo disturi	orary pł bance	nysical	Smoth increa susper sedim	nded	ue to		obilisatio ninated ents			water n bration	ioise	Electro fields	omagne (EMF)	tic	In cor	nbinati	on
	С	0	D	С	0	D	с	0	D	с	0	D	с	0	D	с	0	D	С	0	D
Sea Lamprey	ea N(a) N(a) N(a) N(a)			N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(





Name of Eu	uropean	Site:			Vlaan	ise Banl	ken SAC														
Twaite Shad	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a
Benthic ha	bitats					•						•									
Site Feature	es			Perma	anent lo	SS	Temp distur	orary p bance	nysical	Smotl increa suspe sedim	nded	ue to	-	obilisati minate ents			rwater i ibration		In co	mbinat	ion
				С	0	D	с	0	D	с	0	D	с	0	D	с	0	D	с	0	D
Reefs				N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)
Sandbanks covered by		-		N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)	N(b)

b) The distance between the offshore project area and the designated site is beyond the range of any potential LSE.





Enhancing Socie	ety logether																				
Site					162																
Name of I	Europea		Vlakte	van de	Raan S	CI/SAC															
Distance	to Norfo	olk Vang	guard (k	(m)	135																
Marine M	lammal	5																			
Site Featu	ires	Li	ikely eff	ect(s) of	Norfoll	k Vangu	ard														
		U	Inderwa	iter nois	e	Ve	ssel Int	eraction	S	Ind	lirect ef	fects on	prey	Cha	nges to	water q	uality	In co	mbinati	on	
		С		0	D	С		0	D	С		C	D	С	0		D	С	0	1	D
Harbour p	bour porpoise N (a) N (a) N (a) y seal N (a) N (a) N (a)					N	(a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)	N (a) I	N (a)
Grey seal					N	(a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)	N (a) I	N (a)	
Harbour s	arbour seal N (a) N (a)			N (a)	N	(a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)		N (a)	N (a)	N (a) I	N (a)	
Fish		I	I				I		<u> </u>												
Site	Likely	effect(s) of Nor	folk Van	guard																
Features							Smoth increa suspe sedim	nded	ue to	-	obilisat minate ents			water r bration	ioise	Electro fields	omagne (EMF)	tic	In con	nbinatio	n
	с	0	D	С	0	D	с	0	D	с	ο	D	с	о	D	с	0	D	с	0	D
Sea Lamprey	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (
River lamprey	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (





Site					162																
Name of	Europea	an Site:			Vlakte	van de	Raan S	CI/SAC													
Distance	to Norfo	olk Vang	guard (k	m)	135																
Twaite Shad	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)
•	The dista LSE.	ance bet	tween tl	he pote	ntial imp	oact ran	ge of No	orfolk V	anguarc	and th	e extent	of any	effect o	n indivio	duals fro	om this s	site wou	ıld resul	t in no p	ootentia	al for

Site		163												
Name of European Si	te	Voordelta SP	A and SA	C										
Distance to Norfolk V	anguard (km)	106												
Ornithology														
Site Features	Likely effect(s) of Norfolk Va	anguard											
			Collisio	n mortality	/	Displace	ement/Dis	turbance	Barrier E	ffect		Cumulat	ive/In-	
												combina	ition	
			С	0	D	С	0	D	с	0	D	С	0	D
Wintering and passag	e waterbirds in	cluding		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N(a)	N (b)	N (b)	N (b)
cormorant, shelduck,	ringed plover, o	dunlin,												
goldeneye, sanderling	g, little gull, eide	er, great												
crested grebe, greylag	g goose, Sandwi	ch tern,												
avocet, gadwall, Slavo	onian grebe, spo	onbill, red-												
breasted merganser,	pintail, red-thro	ated diver,												
bar-tailed godwit, oys	stercatcher, sho	veler,												





Enhancing Socie	ety logether																				
Site				16	3																
Name of E	Europea	n Site		Vo	oordelta	SPA an	d SAC														
Distance t	to Norfo	olk Van	guard (k	m) 10	6																
wigeon, tu tern, teal,		-																			
Marine m	ammals	5	Likely effect(s) of Norfolk Varguard Underwater noise Underwater noise Underwater noise Underwater noise																		
Site Featu	res	L	ikely eff																		
		L	Inderwa	ter noise	е	Un	derwat	er noise		Unc	lerwate	er noise		Unde	erwater	noise		Unde	rwater r	noise	
		С	:	0	D	С	1	0	D	С	(C	D	С	0		D	С	0	[)
Harbour s	eal	Ν	I (c)	N (c)	N (c)	N ((c)	N (c)	N (c)	N (c	:) (:	N (c)	N (c)	N (c)			N (c)	N (c)	N (0	c) N	N (c)
Grey seal		Ν	I (c)	N (c)	N (c)	N ((c)	N (c)	N (c)	N (c	:) (:	N (c)	N (c)	N (c)			N (c)	N (c)	N (0	c) r	N (c)
Fish																					
Site	Likely	effect(s	s) of Nor	folk Van	guard																
Features	Perma loss	inent h	abitat	Tempo disturk	orary ph bance	ysical	Smoth increa suspe sedim	nded	ue to		obilisat minateo ents			water n bration	oise	Electro fields	omagne (EMF)	tic	In com	nbinatio	n
	С	0	D	С	0	D	с	0	D	С	0	D	С	0	D	с	0	D	С	0	D
Sea lamprey	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)	N(c)



Site



Name of	Europea	n Site

Voordelta SPA and SAC

163

Distance to Norfolk Vanguard (km) ¹⁰⁶

| River
lamprey | N(c) |
|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Allis
shad | N(c) |
| Twaite
shad | N(c) |

Benthic Habitats

	Site	Likely effect(s) of Nor	folk Var	nguard																
	Features		Perma	anent lo:	SS	Tempo disturl	orary ph bance	ysical	Smoth increa susper sedim	nded	ue to	_	obilisatio ninate c ents			water n bration	oise	In com	nbination	ſ
			с	0	D	с	0	D	С	0	D	с	0	D	с	0	D	с	0	D
-		s which are slightly y sea water all the	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)	N(d)

a) Survey data show little or no evidence of Voordelta SPA features occurring in the Norfolk Vanguard site, and migrations of birds from this SPA are likely to result in negligible numbers passing through the Norfolk Vanguard site.

b) The predicted effect attributable to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for these features at Voordelta SPA.

c) The distance between the potential impact range of Norfolk Vanguard and the extent of any effect on individuals from this site would result in no potential for LSE.

d) The distance between the offshore project area and the designated site is beyond the range of any potential LSE.





Site 16	4											
Name of European Site: Wa	ddenzee (Wadden So	ea) SPA									
Distance to Norfolk Vanguard (km) 11	L											
Site Features	Likely ef	fect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ement/Dist	urbance	Barrier	Effect		Cumula	tive/In-cor	nbination
	С	0	D	С	0	D	С	0	D	с	0	D
Breeding seabird assemblage including as named features lesser black-backed gull, little tern, common tern, Arctic tern, Sandwich tern		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (d)	N (d)	N (d)
Breeding waterbirds including Kentish plover, ringed plover, marsh harrier, spoonbill, avocet		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (d)	N (d)	N (d)
Wintering and passage waterbirds including pintail, shoveler, teal, wigeon, mallard, gadwall, greylag goose, bean goose Anser fabalis, turnstone, scaup, brent goose, barnacle goose, goldeneye, sanderling, dunlin, knot, curlew sandpiper, ringed plover, black tern <i>Chlidonias niger</i> , hen harrier, Bewick's swan, oystercatcher, bar-tailed godwit, black-tailed godwit, red-breasted		N (c)		N (c)	N (c)	N (c)	N (c)	N (c)	N (c)	N (d)	N (d)	N (d)





Site	164
Name of European Site:	Waddenzee (Wadden Sea) SPA
Distance to Norfolk Vanguard (km)	111
merganser, goosander, curlew, cormorant, spoonbill, golden plover, gr plover, great crested grebe, avocet, eic shelduck, greenshank, redshank, lapwi	der, der
connectivity. Proportions of these the distance, but also because bir	beyond the mean maximum foraging range of designated breeding seabird species from this SPA, so has no breeding season e populations migrating through the Norfolk Vanguard site are likely to be extremely small relative to BDMPS, not only because of rds from this SPA are likely to use the west European flyway along the continental coast rather than crossing the southern North cking has shown breeding birds do not cross the North Sea therefore no connectivity is expected for this species.
	dence of Waddenzee SPA breeding waterbird features occurring in the Norfolk Vanguard site, and migrations of birds from this ole numbers passing through the Norfolk Vanguard site.
· · · ·	dence of Waddenzee SPA nonbreeding waterbird features occurring in the Norfolk Vanguard site, and migrations of birds from gligible numbers passing through the Norfolk Vanguard site.
(d) The predicted effect attributable these features at Waddenzee SPA	to Norfolk Vanguard is so small that it would not significantly contribute to or alter the overall in-combination assessment for A.





Enhancing Society Together																		
Site		1	165															
Name of European Site:		١	Nadden	zee SAC														
Distance to Norfolk Van	guard (km) 1	111															
Marine Mammals																		
Site Features	Likely	effect(s)	of Norfo	olk Vangu	uard													
	Under	water no	oise	Vessel	Interact	tions	Indired prey	t effect	s on	Change quality	es to wa	ater	In com	bination	1 			
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D			
Grey seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)			
Harbour seal	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)	N(a)		N(a)	N(a)	N(a)	N(a)			
Benthic Habitats	1	1		1	1	1	1	1		1				1				
Site Features	Perma	nent los	S	Tempo disturb	orary phy bance	/sical		ering du sed susp ent			obilisatio ninate d ents		Under vibrati	water no on	oise and	In com	nbinatior	1
	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D	С	0	D
Sandbanks which are slightly covered by sea water all the time	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)
Estuaries	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)
Mudflats and sandflats not covered by seawater at low tide	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)		N (b)	N (b)		N (b)	N (b)	N (b)	N (b)
a) The distance betweenb) The distance between				-		-							n this site	e would	result in	no potei	ntial for	LSE.





Site	166											
Name of European Site:	Nest West	ray SPA										
Distance to Norfolk Vanguard (km)	773											
Site Features	Likely ef	fect(s) of N	orfolk Van	guard								
	Collision	mortality		Displace	ment/Dist	urbance	Barrier E	ffect		Cumulat	nbination	
	С	0	D	С	0	D	С	0	D	С	0	D
Breeding seabird assemblage including as named features kittiwake, Arctic tern, fulmar, razorbill, Arctic skua, guillemot		N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (b)	N (b)	N (b)
(a) West Westray SPA is beyond maximu		-	-			is no breed	ing season	connectiv	ity. Propor	tions of th	ese popula	ations
migrating through the Norfolk Vangu (b) The predicted effect attributable to N		•	•			antly contri	bute to or	alter the o	overall in-co	ombinatio	n assessme	ent for
these features at West Westray SPA.												





Site			167 Weste	rschelde	e & Saef	tinghe	SAC														
Name of E Site:	Europea	in																			
Distance t Vanguard		olk	141																		
Marine M	lammal	S																			
Site Featu	res	L	ikely eff	ect(s) of	Norfoll	< Vangu	ard														
		U	Inderwa	iter nois	e	Ve	ssel Inte	eraction	s	Ind	irect ef	fects on	prey	Chai	nges to	water q	uality	In co	mbinatio	on	
		С		0	D	C		0	D	С		C	D	С	0		D	С	0	1	C
Harbour s	eal	N	l (a)	N (a)	N (a)	N	(a)	N (a)	N (a)	N (a	a)	N (a)	N (a)	N (a)		N (a)	N (a)	N (a) I	N (a)
Fish	-	·	·							·	·								·	·	
Site	Likely	effect(s) of Nor	folk Van	guard																
Features	Perma loss	inent h	nt habitat Temporary physical disturbance					ering di sed nded ent	ue to		obilisat minateo ents			water r bration	ioise		omagne (EMF)	tic	In com	nbinatio	n
	с	0	D	С	0	D	с	0	D	с	0	D	С	0	D	С	0	D	с	0	D
River lamprey	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)
Twaite Shad	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (a





Site	168											
Name of European Site:	Ythan E	stuary, Sands o	f Forvie and	d Meikle L	och SPA							
Distance to Norfolk Vanguard (km)	556											
Site Features	Lik	ely effect(s) of	Norfolk Var	nguard								
	Col	lision mortality		Displace	ement/Dist	urbance	Barrier E	Effect		Cumula	tive/In-cor	nbination
	С	0	D	С	0	D	с	0	D	С	0	D
Wintering and passage waterbird assemblage including as named fea lapwing, eider, pink-footed goose, redshank	tures	N (a)		N (a)	N (a)	N (a)	N (a)	N (a)	N (a)	N (c)	N (c)	N (c)
Breeding little tern, common tern, Sandwich tern		N (b)		N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)	N (b)
 (a) Survey data show little or no e from this SPA are likely to resu (b) Little tern, common tern and S between the SPA and Norfolk collision risk, displacement and (c) The predicted effect attributation 	Ilt in negligib Gandwich ter Vanguard sit d barrier effe	e numbers pas n have maximu e which are 556 cts can be excl	sing throug m foraging 5km apart. uded.	gh the Nor ranges fro Furthermo	folk Vangu m colonies pre, these s	ard site. 5 of 11km, pecies ten	30km and 1 d to forage	54km resp in coastal	ectively, so waters rat) there is r her than c	o connect offshore. T	ivity herefore,

these features at Ythan Estuary, Sands of Forvie & Meikle Loch SPA.