FIVE ESTUARIES
OFFSHORE WIND FARM

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VOLUME 5, REPORT 4.3: HABITATS REGULATIONS ASSESSMENT SCREENING MATRICES – REVISION E (TRACKED)

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In preparation of this document Five Estuaries Wind Farm Ltd has made reasonable efforts to ensure that the content is accurate, up to date and complete for the purpose.

Revision	Date	Status/Reason for Issue	Originator	Checked	Approved
A	Mar-24	ES	GoBe	GoBe	VE OWFL
B	Jan-25	Deadline 5	GoBe	GoBe	VE OWFL
C	March-25	Deadline 7	GoBe	GoBe	VE OWFL
D	March-25	Deadline 8	GoBe	GoBe	VE OWFL
E	Aug-25	Decision Period	GoBe	GoBe	VE OWFL

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MATRICES

DEFINITION OF ACRONYMS

Term	Definition
EMF	Electromagnetic Field
ECC	Export Cable Corridor
HRA	Habitats Regulations Assessment
INNS	Invasive Non-Native Species
LSE	Likely Significant Effect
OWF	Offshore Wind Farm
PEIR	Preliminary Environmental Impact Report
PINS	Planning Inspectorate
RIAA	Report to Inform Appropriate Assessment
SAC	Special Area of Conservation
SPA	Special Protected Area
VE	Five Estuaries
VEOWFL	Five Estuaries Offshore Windfarm Limited
WTG	Wind Turbine Generator
ZoI	Zone of Influence

UNITS

Units	Definition
km	Kilometre
cm	Centimetre
m	Metre
ha	Hectare
kg	Kilogram

1 MATRIX KEY

✓ = Likely Significant Effect cannot be excluded
X = Likely Significant Effect can be excluded

Evidence for, or against adverse effects on European site qualifying feature and Likely Significant Effect is detailed within the footnotes to the integrity matrices

C = construction
O = operation and maintenance
D = decommissioning

 = Effect not relevant to feature (no pathway)

2 INDEX TO MATRICES

2.1.1 This appendix presents the Screening matrices for Five Estuaries Offshore Wind Farm (OWF, hereafter 'VE') prompted by Five Estuaries Offshore Windfarm Limited (hereafter 'the Applicant') in accordance with the structure and format specified in PINS Advice Note 10 (version 8, from November 2022).

Table 2.1 Index to matrices

Matrix Number	European site included within the assessment
1.	Vlaamse Banken SAC
2.	Thanet Coast SAC
3.	Bancs des Flandres SAC
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5.	Alde, Ore and Butley Estuaries SAC
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11.	Dengie (Mid-Essex Coast Phase 1) Ramsar
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14.	Alde-Ore Estuary Ramsar
15.	Foulness (Mid-Essex Coast Phase 5) Ramsar
16.	Berwickshire and North Northumberland Coast SAC
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19.	Moray Firth SAC
20.	Southern North Sea SAC
21.	Wash and North Norfolk Coast SAC
22.	Transboundary sites for Harbour porpoise
23.	Transboundary Sites for Seals

Matrix Number	European site included within the assessment
24.	Outer Thames Estuary SPA
25.	Alde-Ore Estuary SPA
26.	Minsmere- Walberswick SPA
27.	Minsmere- Walberswick Ramsar
28.	Hamford Water SPA
29.	Thanet Coast and Sandwich Bay SPA
30.	Greater Wash SPA
31.	Colne Estuary (Mid-Essex Coast Phase 2) SPA
32.	Foulness (Mid-Essex Coast Phase 5) SPA
33.	Breydon Water SPA
34.	Blackwater Estuary SPA
35.	Blackwater Estuary Ramsar
36.	Medway Estuary and Marshes SPA
37.	Dungeness, Romney Marsh and Rye Bay SPA
38.	North Norfolk Coast SPA
39.	North Norfolk Coast Ramsar
40.	The Wash SPA
41.	Gibraltar Point SPA
42.	Humber Estuary SPA
43.	Flamborough and Filey Coast SPA
44.	Teesmouth and Cleveland Coast SPA
45.	Northumbria Coast SPA
46.	Northumbria Coast Ramsar
47.	Northumberland Marine SPA
48.	Coquet Island SPA
49.	Farne Islands SPA
50.	Aberdaron Coast and Bardsey Island SPA
51.	Lindisfarne SPA
52.	Skomer Skokholm and the Seas off Pembrokeshire

Matrix Number	European site included within the assessment
53.	St Abb's Head to Fast Castle SPA
54.	Grassholm SPA
55.	Imperial Dock Lock, Leith SPA
56.	Forth Islands SPA
57.	Ailsa Craig SPA
58.	Fowlsheugh SPA
59.	Isles of Scilly SPA
60.	Ythan Estuary, of Sands of Foryie and Meikle Loch SPA
61.	Ythan Estuary, Sands of Foryie and Meikle Loch Ramsar
62.	Buchan Ness to Collieston Coast SPA
63.	Rathlin Island SPA
64.	Loch of Strathbeg SPA
65.	Troup, Pennan and Lion's Heads SPA
66.	Inner Moray Firth SPA
67.	Cromarty Firth SPA
68.	Rum SPA
69.	East Caithness Cliffs SPA
70.	North Caithness Cliffs SPA
71.	Copinsay SPA
72.	Mingulay and Berneray SPA
73.	Hoy SPA
74.	Auskerry (UK) SPA
75.	Handa SPA
76.	Shiant Isles SPA
77.	Cape Wrath SPA
78.	Calf of Eday SPA
79.	Rousay SPA
80.	Marwick Head SPA
81.	Fair Isle SPA

Matrix Number	European site included within the assessment
82.	West Westray SPA
83.	Papa Westray (North Hill and Holm) SPA
84.	Sule Skerry and Sule Stack SPA
85.	Sumburgh Head SPA
86.	Mousa SPA
87.	Noss SPA
88.	Flannan Isles SPA
89.	St Kilda SPA
90.	North Rona and Sula Sgeir SPA
91.	Foula SPA
92.	Papa Stour SPA
93.	Fetlar SPA
94.	Ronas Hill-North Roe and Tingon SPA
95.	Hermaness, Saxa Vord and Valla Field SPA
96.	Ramna Stacks and Gruney SPA
97.	Southern Waters of Gibraltar SPA
98.	Vlakte van de Raan
99.	Westerschelde & Saeftinghe
100.	Voordelta
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Proposed Compensation Site at Orford Ness	
106.	Alde-Ore Estuary Ramsar
107.	Alde-Ore Estuary SPA
108.	Orfordness – Shingle Street SAC
109.	Outer Thames Estuary SPA

Matrix Number	European site included within the assessment
110.	Alde-Ore Butley Estuaries SAC
111.	Southern North Sea SAC
112.	Sandlings SPA
113.	Staverton Park & The Thicks Wantisden SAC
114.	Minsmere - Walberswick Ramsar
115.	Minsmere - Walberswick SPA
116.	Minsmere to Walberswick Heaths & Marshes SAC

3 EFFECTS CONSIDERED

Potential effects on European sites which are considered within the submitted Information to Support the Report to Inform Appropriate Assessment for the Habitats Regulation Assessment (HRA) of VE are provided in Table 3.1~~Table 3.1~~ below.

Table 3.1: Potential effects on the European site considered in the matrices

Potential effects on the European site considered in the matrices	
Designations	**Impacts Considered in Matrices**
Vlaamse Banken SAC	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes Underwater noise Collision risk Changes to prey Disturbance at haul out
Thanet Coast SAC	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes
Bancs des Flandres SAC	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes Underwater noise Collision risk Changes to prey Disturbance at haul out Barrier effect

Potential effects on the European site considered in the matrices	
Margate and Long Sands (SAC)	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes
Alde, Ore and Butley Estuaries SAC	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes
Orfordness – Shingle Street SAC	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes
Essex Estuaries SAC	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes
Deben Estuary Ramsar	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes Collision risk
Deben Estuary Ramsar	Changes in prey availability and behaviour

Potential effects on the European site considered in the matrices	
	Direct disturbance and displacement Barrier effects Changes to physical processes
Dengie (Mid-Essex Coast Phase 1) SPA	Collision risk
Dengie (Mid-Essex Coast Phase 1) Ramsar	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes Collision risk
Stour and Orwell Estuaries Ramsar	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes Collision risk
Colne Estuary (Mid-Essex Coast Phase 2) Ramsar	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes Collision risk
Alde-Ore Estuary Ramsar	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes Collision risk

Potential effects on the European site considered in the matrices	
	Changes to prey Barrier effect
Foulness (Mid-Essex Coast Phase 5) Ramsar	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution Invasive Non-native species (INNS) EMF Changes to physical processes
Berwickshire and North Northumberland Coast SAC	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbances Accidental pollution Disturbance at haul out
Humber Estuary SAC	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution Disturbance at haul out
Humber Estuary Ramsar	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution Disturbance at haul out
Moray Firth SAC	Underwater noise Collision risk Changes to prey Accidental pollution
Southern North Sea SAC	Underwater noise Collision risk

Potential effects on the European site considered in the matrices	
	Physical habitat loss/ disturbance Changes to prey Accidental pollution
Wash and North Sea SAC	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution and water quality Disturbance at haul out
Doggersbank (Netherlands) SAC	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution Disturbance at haul out
Klaverbank SCI	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution Disturbance at haul out
Noordzeekustone SCI	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution Disturbance at haul out
SBZ 1 SCI	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution

Potential effects on the European site considered in the matrices	
	Disturbance at haul out
SBZ 2 SCI	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution Disturbance at haul out
SBZ 3 SCI	Underwater noise Collision risk Changes to prey Physical habitat loss/ disturbance Accidental pollution Disturbance at haul out
Voordelta SCI	Underwater noise Collision risk Changes to prey Accidental pollution and water quality Physical habitat loss/ disturbance Disturbance at haul out
Waddenzee SCI	Underwater noise Collision risk Changes to prey Accidental pollution and water quality Physical habitat loss/ disturbance Disturbance at haul out
Westerschelde & Saeftinghe	Underwater noise Collision risk Changes to prey Accidental pollution and water quality Physical habitat loss/ disturbance Disturbance at haul out
Outer Thames Estuary SPA	Changes in prey availability and behaviour

Potential effects on the European site considered in the matrices	
	Disturbance and displacement Direct disturbance and displacement Barrier effect Habitat loss Collision risk
Alde-Ore Estuary SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Minsmere-Walberswick SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Minsmere-Walberswick Ramsar	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effects Collision risk
Hamford Water SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk Pollution (water quality) Pollution (air quality) Decreases in water quantity Loss of foraging and roosting habitat outside of the SPA
Thanet Coast and Sandwich Bay SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Greater Wash SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk

Potential effects on the European site considered in the matrices	
Colne Estuary (Mid-Essex Coast Phase 2) SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution INNS Changes to physical processes
Foulness (Mid-Essex Coast Phase 5) SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Breydon Water SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Blackwater Estuary (Mid-Essex Coast Phase 4) SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk Loss of foraging and roosting habitat outside the SPA Disturbance/ displacement of birds outside SPA Water quality Decreases in water quantity Decreases in air quality
Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk Loss of foraging and roosting habitat outside the SPA Disturbance/ displacement of birds outside

Potential effects on the European site considered in the matrices	
	Water quality Decreases in water quantity Decreases in air quality
Medway Estuary and Marshes SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Dungeness, Romney Marsh and Rye Bay SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
North Norfolk Coast SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
The Wash SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Gibraltar Point SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Humber Estuary SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Flamborough and Filey Coast SPA	Changes in prey availability and behaviour Collision risk Direct disturbance and displacement Barrier effect In-combination
Teesmouth and Cleveland Coast SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effects
Northumbria Coast SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect

Potential effects on the European site considered in the matrices	
Northumbria Coast Ramsar	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Northumberl and Marine SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Coquet Island SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Farne Islands SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Aberdaron Coast and Bardsey Island SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Lindisfarne SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Skomer Skokholm and the Seas off Pembrokeshire	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
St Abb's Head to Fast Castle SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Grassholm SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect
Imperial Dock Lock, Leith SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Forth Islands SPA	Changes in prey availability and behaviour

Potential effects on the European site considered in the matrices	
	Direct disturbance and displacement Barrier effect Collision risk
Ailsa Craig SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Fowlsheugh SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Isles of Scilly SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Ythan Estuary, of Sands of Foryie and Meikle Loch SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Ythan Estuary, Sands of Foryie and Meikle Loch Ramsar	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Buchan Ness to Collieston Coast SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Rathlin Island SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Loch of Strathbeg SPA	Changes in prey availability and behaviour

Potential effects on the European site considered in the matrices	
	Direct disturbance and displacement Barrier effect Collision risk
Troup, Pennan and Lion's Heads SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Inner Moray Firth SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Cromarty Firth SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Rum SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
East Caithness Cliffs SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
North Caithness Cliffs SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Copinsay SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Mingulay and Berneray SPA	Changes in prey availability and behaviour

Potential effects on the European site considered in the matrices	
	Direct disturbance and displacement Barrier effect Collision risk
Hoy SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Auskerry (UK) SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Handa SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Shiant Isles SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Cape Wrath SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Calf of Eday SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Rousay SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Marwick Head SPA	Changes in prey availability and behaviour

Potential effects on the European site considered in the matrices	
	Direct disturbance and displacement Barrier effect Collision risk
Fair Isle SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
West Westray SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Papa Westray (North Hill and Holm) SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Sule Skerry and Sule Stack SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Sumburgh Head SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Mousa SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Noss SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Flannan Isles SPA	Changes in prey availability and behaviour

Potential effects on the European site considered in the matrices	
	Direct disturbance and displacement Barrier effect Collision risk
St Kilda SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
North Rona and Sula Sgeir SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Foula SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Papa Stour SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Fetlar SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Ronas Hill-North Roe and Tingon SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Hermaness, Saxa Vord and Valla Field SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Ramna Stacks and Gruney SPA	Changes in prey availability and behaviour

Potential effects on the European site considered in the matrices	
	Direct disturbance and displacement Barrier effect Collision risk
Southern Waters of Gibraltar SPA	Changes in prey availability and behaviour Direct disturbance and displacement Barrier effect Collision risk
Vlakte van de Raan	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution INNS EMF Underwater noise Changes to prey
Westerschelde & Saeftinghe	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution INNS EMF Underwater noise Changes to prey
Voordelta	Physical habitat loss/ disturbance Suspended sediment/ deposition Accidental pollution INNS EMF Underwater noise Changes to prey
Hamford Water SAC	Impacts on supporting populations, food plant and potential habitat outside of the SAC Water quality: pollution from site run-off affecting habitat quality Decreases in water quality

Potential effects on the European site considered in the matrices	
	Decreases in air quality In-combination
Hamford Water Ramsar	Disturbance of birds outside the Ramsar Water quality: pollution from site run-off affecting prey availability Decreases in water quantity
Stour and Orwell Estuaries SPA	Disturbance of birds outside of the SPA Water quality: pollution from site run-off affecting prey availability Decreases in water quantity Decreases in air quality Loss of foraging and roosting habitat outside the Ramsar In-combination
Abberton Reservoir SPA	Disturbance of birds outside of the SPA Water quality: pollution from site run-off affecting habitat quality Decrease in air quality Loss of foraging and roosting habitat outside the Ramsar In-combination
Abberton Reservoir Ramsar	Disturbance of birds outside the Ramsar Water quality: pollution from sire run-off affecting prey availability Decrease in air quality Loss of foraging and roosting habitat outside the Ramsar In-combination
Proposed Compensation Site at Orford Ness	
Alde-Ore Estuary Ramsar	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants

Potential effects on the European site considered in the matrices	
	Disturbance of qualifying interest birds due to the presence of workers Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Alde-Ore Estuary SPA	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Disturbance of qualifying interest birds due to the presence of workers Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Orfordness – Shingle Street SAC	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Release of suspended solids and other pollution into waterways

Potential effects on the European site considered in the matrices	
	Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Outer Thames Estuary SPA	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Disturbance of qualifying interest birds due to the presence of workers Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Alde-Ore Butley Estuaries SAC	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition

Potential effects on the European site considered in the matrices	
	Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Southern North Sea SAC	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Sandlings SPA	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Disturbance of qualifying interest birds due to the presence of workers Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality

Potential effects on the European site considered in the matrices	
	Changes in water flows caused by fence lines across ditches In-combination
Staverton Park & The Thicks Wantisden SAC	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Walberswick Ramsar	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Disturbance of qualifying interest birds due to the presence of workers Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination

Potential effects on the European site considered in the matrices	
Walberswick SPA	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Disturbance of qualifying interest birds due to the presence of workers Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination
Minsmere to Walberswick Heaths & Marshes SAC	Damage to qualifying interest habitats or the habitats of the qualifying interest species Direct mortality of qualifying interest animals and plants Release of suspended solids and other pollution into waterways Spread of non-native invasive species Removal of grazing animals affecting vegetation composition Increases in nutrients from bird faeces affecting vegetation composition and water quality Changes in water flows caused by fence lines across ditches In-combination

HRA Screening Matrix 1: Vlaamse Banken (Special Area of Conservation (SAC))

Name of European site:	**Vlaamse Banken SAC**																													
EU Code:	BEMNZ000																													
Distance to Project:	34.75 km to array area																													
Likely Effects of Project																														
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes			Underwater noise			Collision risk			Changes to prey			Disturbance at haul out		
Stage of Development	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
Reefs	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa												
Sandbanks which are slightly covered by sea water all the time	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa												
Harbour porpoise							Xb		Xb										Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb			
Harbour seal; and Grey seal	✓c	Xd	✓c				Xd	Xd	Xd										✓e	Xd	✓e	✓f	✓f	✓f	✓g	✓g	✓g	✓h	✓h	✓h
River lamprey; and Sea Lamprey	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi				Xj	Xj	Xj				Xi	Xi	Xi			
Twaite shad	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi	Xi				✓k		✓k									

Evidence supporting conclusions:

Xa There is no potential for LSE as the sit sits beyond the benthic subtidal study area as defined by the secondary Zone of Influence (ZoI) and therefore has been screened out.
Xb There is no potential for LSE. The site has been screened out based on a lack of evidence to suggest connectivity (site not within 26km of VE).
✓c The location of the project relative to the at sea usage area of seals together with connectivity to the SAC indicates the potential for seal habitat loss (caused by potential disturbance and barrier effects as a result of increases in underwater noise).
Xd No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site, and the scale of the potential change.
✓e Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between seals and underwater noise associated with VE.
✓f The location of the project relative to the at sea usage area of seals together with connectivity to the SAC may result in increased collision risk of seals (with vessels associated with activity relating to VE).
✓g Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between seals and changes in prey associated with VE.
✓h It is not possible to screen out potential disturbance impacts at haul out sites for seals of this SAC since information on vessel use (movements, routes and levels of traffic) and the associated ports to be used is not yet available.

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Xi No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site.

Xj The range between the array areas and designated site combined with the low sensitivity of lamprey to underwater noise (Popper et al., 2014) mean that there is no potential for LSE for these species at this site.

✓k The range between the array areas and designated site combined with the high sensitivity of Twaite Shad to underwater noise (Popper et al., 2014) mean that there is a potential for LSE for this species at this site during pile driving and UXO clearance.

End of Matrix 1

HRA Screening Matrix 2: Thanet Coast (SAC)

Name of European site:	Thanet Coast SAC																	
EU Code:	UK0013107																	
Distance to Project:	56.14 km to array area																	
Likely Effects of Project																		
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Reefs	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa
Submerged or partially submerged sea caves	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa

Evidence supporting conclusions:

Xa There is no potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZoI and therefore has been screened out.

End of Matrix 2

HRA Screening Matrix 3: Bancs des Flandres (SAC)

Name of European site:	**Bancs des Flandres SAC**																																	
EU Code:	FR3102002																																	
Distance to Project:	49.11 km to array area																																	
Likely Effects of Project																																		
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes			Underwater noise			Collision risk			Changes to prey			Disturbance at haul out			Barrier effect		
Stage of Development	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
Sandbanks which are slightly covered by seawater at low tide	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa																
Harbour porpoise	Xb		Xb				Xb		Xb										Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb							
Harbour seal; and Grey seal	✓c	Xd	✓c				Xd		Xd										✓e	Xd	✓e	✓f	✓f	✓f	✓g	✓g	✓g	✓h	✓h	✓h				
Northern gannet	Xi	Xi	Xi																				Xi		Xi	Xi	Xi					Xi		
Razorbill	Xi	Xi	Xi																						Xi	Xi	Xi							

Evidence supporting conclusions:

Xa There is no potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZoI and therefore has been screened out.
Xb No potential for LSE. The site has been screened out based on a lack of evidence to suggest connectivity (site not within 26km of VE).
✓c The location of the project relative to the at sea usage area of seals together with connectivity to the SAC indicates the potential for seal habitat loss (caused by potential disturbance and barrier effects as a result of increases in underwater noise).
Xd No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site, and the scale of the potential change.
✓e Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between seals and underwater noise associated with VE.
✓f The location of the project relative to the at sea usage area of seals together with connectivity to the SAC may result in increased collision risk of seals (with vessels associated with activity relating to VE).

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✓g	Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between seals and changes in prey associated with VE.
✓h	It is not possible to screen out potential impacts at haul out sites for seals of this SAC since information on vessel use (movements, routes and levels of traffic) and the associated ports to be used is not yet available.
Xi	The significance of effect at a population level is considered to decrease with distance and the severity of the effect experienced locally. The likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on this site after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 3

HRA Screening Matrix 4: Margate and Long Sands (SAC)

Name of European site:	Margate and Long Sands (SAC)																	
EU Code:	UK0030371																	
Distance to Project:	23.61 km to array area																	
Likely Effects of Project																		
Effect	Physical habitat loss/ disturbance			Suspended sediment/			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Sandbanks which are slightly covered by sea water all the time	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓ a	✓a	✓a	✓a		✓a			✓a	

Evidence supporting conclusions:

✓a Effects cannot be screened out at this stage and therefore there is a potential for LSE.

End of Matrix 4

HRA Screening Matrix 5: Alde, Ore and Butley Estuaries (SAC)

Name of European site:	**Alde, Ore and Butley Estuaries SAC**																	
EU Code:	UK0030076																	
Distance to Project:	37.44 km to array area																	
Likely Effects of Project																		
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Estuaries	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa
Mudflats and sandflats not covered by seawater at low tide	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa
Atlantic salt meadows	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa

Evidence supporting conclusions:

Xa There is no potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZoI and therefore has been screened out.

End of Matrix 5

HRA Screening Matrix 6: Orfordness – Shingle Street (SAC)

Name of European site:	**Orfordness – Shingle Street SAC**																	
EU Code:	UK0014780																	
Distance to Project:	37.31 km to array area																	
Likely Effects of Project																		
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Coastal lagoons	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa
Annual vegetation of drift lines	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa
Perennial vegetation of stony banks	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb	Xb		Xb		Xb	Xb	Xb

Evidence supporting conclusions:

Xa There is no potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZoI and therefore has been screened out.

Xb Feature located outside the reach of waves and at a distance from project boundary. No potential for LSE.

End of Matrix 6

HRA Screening Matrix 7: Essex Estuaries SAC

Name of European site:	**Essex Estuaries SAC**																	
EU Code:	UK0013690																	
Distance to Project:	64.27 km to array area																	
Likely Effects of Project																		
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Estuaries	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a	
Mudflats and sandflats not covered by seawater at low tide	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a	
Salicornia and other annuals colonizing mud and sand	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a	
Spartina swards	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a	
Atlantic salt meadows	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a	
Mediterranean and thermo-Atlantic halophilous scrubs	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a	
Sandbanks which are slightly covered by sea water all the time	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a	√a		√a			√a	

Evidence supporting conclusions:

√a Effects cannot be screened out at this stage and therefore there is a potential for LSE.

End of Matrix 7

HRA Screening Matrix 8: Deben Estuary Ramsar

Name of European site:	**Deben Estuary Ramsar**																					
EU Code:	UK11018																					
Distance to Project:	48.32 km to array area																					
Likely Effects of Project																						
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Ramsar criterion 2: *Vertigo angustior*	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa			
Wintering population of: Dark-bellied brent goose																				✓b	

Evidence supporting conclusions:

Xa No potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZoI and therefore has been screened out.

✓b While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 8

HRA Screening Matrix 9: Deben Estuary SPA

Name of European site:	**Deben Estuary Ramsar**											
EU Code:	UK11018											
Distance to Project:	48.32 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Avocet	Xa	Xa	Xa	Xb	Xb	Xb	Xb	Xb	Xb		✓c	
Wintering population of: Dark-bellied brent goose											✓c	

Evidence supporting conclusions:

Xa The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.

Xb Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts in the array areas alone. The SPA is not within MMF+1SD of the offshore ECC. Therefore, effects can be ruled out at this stage for displacement in the offshore ECC. Therefore, LSE can be discounted for this impact alone.

✓c While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 9

HRA Screening Matrix 10: Dengie (Mid-Essex Coast Phase 1) SPA

Name of European site:	Dengie (Mid-Essex Coast Phase 1) SPA		
EU Code:	UK9009242		
Distance to Project:	73.63 km to array area		
Likely Effects of Project			
Effect	Collision risk		
Stage of Development	C	O	D
Dark-bellied brent goose		✓a	
Grey plover		✓a	
Knot		✓a	

Evidence supporting conclusions:

✓a While this SPA is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 10

HRA Screening Matrix 11: Dengie (Mid-Essex Coast Phase 1) Ramsar

Name of European site:	**Dengie (Mid-Essex Coast Phase 1) Ramsar**																				
EU Code:	UK9009242																				
Distance to Project:	73.63 km to array area																				
Likely Effects of Project																					
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Criterion 1 – saltmarsh	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa			
Criterion 2 – rare plant species and invertebrates	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa			
Criterion 3 – saltmarsh species	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa			
Wintering population of: Dark-bellied brent goose; Grey plover; and Knot.																				✓b	

Evidence supporting conclusions:

Xa No potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZoI and therefore has been screened out.

✓b While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 11

Name of European site:	Stour and Orwell Estuaries Ramsar																				
EU Code:	UK9009121																				
Distance to Project:	54.67 km to array area																				
Likely Effects of Project																					
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Criterion 2: Zostera noltei; and Spartina maritima	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa			
Other noteworthy and nationally important flora species: Puccinellia rupestris; Sarcocornia perennis; Limonium humile; and Zostera angustifolia	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa			
Noteworthy invertebrate fauna of national importance: Phaonia fusca; Haematopota grandis (Meigen); Arctosa fulvolineata; and Baryphyma duffeya	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa			
Wintering populations of: Black-tailed godwit; Dark-bellied brent goose; Dunlin; Grey plover; Knot; Pintail; Redshank; Important passage populations of Redshank; and Waterbird assemblage																				✓b	

Evidence supporting conclusions:

Xa No potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZoI and therefore has been screened out.

✓b While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 12

HRA Screening Matrix 13: Colne Estuary (Mid-Essex Coast Phase 2) Ramsar

Name of European site:	**Colne Estuary (Mid-Essex Coast Phase 2) Ramsar**																				
EU Code:	UK9015022																				
Distance to Project:	67 km to array area																				
Likely Effects of Project																					
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Criterion 1 – saltmarsh	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa			
Criterion 2 – 12 species of nationally scarce plants and invertebrate species	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa			
Criterion 3 – full and representative sequences of saltmarsh plant communities covering range of variation in Britain	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa			
Dark-bellied brent goose; Redshank; and Waterbird assemblage																				✓b	

Evidence supporting conclusions:

Xa No potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZoI and therefore has been screened out.

✓b While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 13

HRA Screening Matrix 14: Alde-Ore Estuary Ramsar

Name of European site:	**Alde-Ore Estuary Ramsar**																											
EU Code:	UK11002																											
Distance to Project:	37.31 km to array area																											
Likely Effects of Project																												
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes			Collision risk			Changes to prey			Barrier effect		
Stage of Development	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	
Criterion 2 – a number of nationally-scarce plant species and British Red Data Book invertebrates	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa										
Criterion 3 – full and representative sequences of saltmarsh plant communities covering range of variation in Britain	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa										
Lesser black-backed gull		Xb																		✓c		Xd	Xd	Xd		Xb		
Wintering populations of: Avocent and Redshank																				✓e								

Evidence supporting conclusions:

Xa No potential for LSE as the site sits beyond the benthic subtidal study area as defined by the ZoI and therefore has been screened out.

Xb This species has no /very low vulnerability to displacement or disturbance and barrier effects to OWF and vessel disturbance (Bradbury et al., 2014; Fliessbach et al., 2019). Therefore, LSE can be discounted in relation to this effect alone.

✓c This Ramsar is within the MMF +1SD for lesser back-backed gull and therefore may have connectivity during the breeding season. This species has a very high vulnerability to collision risk with turbines (Bradbury el al., 2014). Given the proximity of VE to the Ramsar, effects cannot be screened out at this stage alone. Therefore, there is potential for LSE.

Xd The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.

✓e While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 14

HRA Screening Matrix 15: Foulness (Mid-Essex Coast Phase 5) Ramsar

Name of European site:	**Foulness (Mid-Essex Coast Phase 5) Ramsar**																	
EU Code:	861																	
Distance to Project:	67.34 km to array area																	
Likely Effects of Project																		
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Changes to physical processes		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Criterion 1 – saltmarsh	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa		Xa
Criterion 2 – a number of nationally-scarce plant species and British Red Data Book Invertebrates	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa		Xa
Criterion 3 – full and representative sequences of saltmarsh plant communities covering range of variation in Britain	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa		Xa

Evidence supporting conclusions:

Xa No potential for LSE as the site sits beyond the benthic subtidal study area as defined by the secondary ZoI and therefore has been screened out.

End of Matrix 15

HRA Screening Matrix 16: Berwickshire and North Northumberland Coast SAC

Name of European site:	Berwickshire and North Northumberland Coast SAC																	
EU Code:	UK0017072																	
Distance to Project:	445.90 km to array area																	
Likely Effects of Project																		
Effect	Underwater noise			Collision risk			Changes to prey			Habitat loss			Disturbance at haul out			Accidental pollution		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Grey seal	✓a	Xb	✓a	✓c	✓c	✓c	✓d	✓d	✓d	✓e	Xb	✓e	✓f	✓f	✓f	Xb	Xb	Xb

Evidence supporting conclusions:

✓a Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between grey seal and underwater noise associated with VE.

Xb No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site, and the scale of the potential change.

✓c The location of the project relative to the sea usage area of grey seal together with connectivity to the SAC may result in increased collision risk of grey seal (with vessels associated with activity relating to VE).

✓d Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between grey seal and changes in prey associated with VE.

✓e The location of the project relative to the at sea usage area of grey seal together with connectivity to the SAC indicates the potential for grey seal habitat loss (caused by potential for disturbance and barrier effects as a result of increases in underwater noise).

✓f It is not possible to screen out potential disturbance impacts at haul out sites for seals of this SAC since information on vessel use (movements, routes and levels of traffic) and the associated ports to be used is not yet available.

End of Matrix 16

HRA Screening Matrix 17: Humber Estuary SAC

Name of European site:	**Humber Estuary SAC**																	
EU Code:	UK0030170																	
Distance to Project:	203.22 km to array area																	
Likely Effects of Project																		
Effect	Underwater noise			Collision risk			Changes to prey			Physical habitat loss/ disturbance			Disturbance at haul out			Accidental pollution		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Grey seal	✓a	Xb	✓a	✓c	✓c	✓c	✓d	✓d	✓d	✓e	Xb	✓e	✓f	✓f	✓f	Xb	Xb	Xb

Evidence supporting conclusions:

✓a Potential for site connectivity is indicated from seal use at sea data. Therefore, there is potential for some level of interaction between grey seal and underwater noise associated with VE.

Xb No potential for LSE. These features have been screened out form assessment as a result of the distance between VE and the designated site, and the scale of potential change.

✓c The location of the project relative to the at sea usage area of grey seal together with connectivity to the SAC may result in increased collision risk of grey seal (with vessels associated with activity relating to VE).

✓d Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between grey seal and changes in prey associated with VE.

✓e The location of the project relative to the at sea usage area of grey seal together with connectivity to the SAC indicates the potential for grey seal habitat loss (caused by potential for disturbance and barrier effects as a result of increases in underwater noise).

✓f It is not possible to screen out potential disturbance impacts at haul out sites for seals of this SAC since information on vessel use (movements, routes and levels of traffic) and the associated ports to be used is not yet available.

End of Matrix 17

HRA Screening Matrix 18: Humber Estuary Ramsar

Name of European site:	Humber Estuary Ramsar																	
EU Code:	663																	
Distance to Project:	197.19 km to array area																	
Likely Effects of Project																		
Effect	Underwater noise			Collision risk			Changes to prey			Physical habitat loss/ disturbance			Disturbance at haul out			Accidental pollution and water quality		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Grey seal	✓a	Xb	✓a	✓c	✓c	✓c	✓d	✓d	✓d	✓e	Xb	✓e	✓f	✓f	✓f	Xb	Xb	Xb

Evidence supporting conclusions:

✓a Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between grey seal and underwater noise associated with VE.

Xb No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site, and the scale of the potential change.

✓c The location of the project relative to the at sea usage area of grey seal together with connectivity to the Ramsar may result in increased collision risk of grey seal (with vessels associated with activity relating to VE).

✓d Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between grey seal and changes in prey associated with VE.

✓e The location of the project relative to the at sea usage area of grey seal together with connectivity to the Ramsar indicates the potential for grey seal habitat loss (caused by potential disturbance and barrier effects as a result of increases in underwater noise).

✓f It is not possible to screen out potential disturbance impacts at haul out sites for seals of this Ramsar since information on vessel use (movements, routes and levels of traffic) and the associated ports to be used is not yet available.

End of Matrix 18

HRA Screening Matrix 19: Moray Firth SAC

Name of European site:	Moray Firth SAC											
EU Code:	UK0019808											
Distance to Project:	725.82 km to array area											
Likely Effects of Project												
Effect	Underwater noise			Collision risk			Changes to prey			Accidental pollution		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Bottlenose dolphin	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa

Evidence supporting conclusions:

Xa No potential for LSE. The site has been screened out based on a lack of evidence to suggest connectivity.

End of Matrix 19

HRA Screening Matrix 20: Southern North Sea SAC

Name of European site:	Southern North Sea SAC														
EU Code:	UK0030395														
Distance to Project:	0 km to array area														
Likely Effects of Project															
Effect	Underwater noise			Collision risk			Physical habitat loss/ disturbance			Changes to prey			Accidental pollution		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Harbour porpoise	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a

Evidence supporting conclusions:

✓a Effects cannot be screened out at this stage and therefore there is a potential for LSE.

End of Matrix 20

HRA Screening Matrix 21: Wash and North Norfolk Coast SAC

Name of European site:	Wash and North Norfolk Coast SAC																	
EU Code:	UK0017075																	
Distance to Project:	126.35 km to array area																	
Likely Effects of Project																		
Effect	Underwater noise			Collision risk			Changes to prey			Physical habitat loss/ disturbance			Disturbance at haul out			Accidental pollution and water quality		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Harbour seal	✓a	Xb	✓a	✓c	✓c	✓c	✓d	✓d	✓d	✓e	Xb	✓e	✓f	✓f	✓f	Xb	Xb	Xb

Evidence supporting conclusions

✓a Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between harbour seal and underwater noise associated with VE.

Xb No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site, and the scale of the potential change.

✓c The location of the project relative to the at sea usage area of harbour seal together with connectivity to the SAC may result in increased collision risk of harbour seal (with vessels associated with activity relating to VE).

✓d Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between harbour seal and changes in prey associated with VE.

✓e The location of the project relative to the at sea usage area of harbour seal together with connectivity to the SAC indicates the potential for harbour seal habitat loss (caused by potential disturbance and barrier effects as a result of increases in underwater noise).

✓f It is not possible to screen out potential disturbance impacts at haul out sites for seals of this SAC since information on vessel use (movements, routes and levels of traffic) and the associated ports to be used is not yet available.

End of Matrix 21

HRA Screening Matrix 22: Transboundary sites for Harbour porpoise

Name of European site:	Transboundary sites for harbour porpoise														
EU Code:	Various														
Distance to Project:	Various														
Likely Effects of Project															
Effect	Underwater noise			Collision risk			Changes to prey			Physical habitat loss/ disturbance			Accidental pollution and water quality		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Bancs des Flandres SCI	~~✓a~~~~Xa~~	Xa	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	Xa	~~✓a~~Xa	Xa		Xa
Vlaamse Banken SAC	~~✓a~~~~Xa~~	Xa	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	Xa	~~✓a~~Xa	Xa		Xa
Doggersbank (Netherlands) SAC	~~✓a~~~~Xa~~	Xa	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	Xa	~~✓a~~Xa	Xa		Xa
Klaverbank SCI	~~✓a~~~~Xa~~	Xa	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	Xa	~~✓a~~Xa	Xa		Xa
Noordzeekustone SCI	~~✓a~~~~Xa~~	Xa	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	Xa	~~✓a~~Xa	Xa		Xa
SBZ 1 SCI	~~✓a~~~~Xa~~	Xa	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	Xa	~~✓a~~Xa	Xa		Xa
SBZ 2 SCI	~~✓a~~~~Xa~~	Xa	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	Xa	~~✓a~~Xa	Xa		Xa
SBZ 3 SCI	~~✓a~~~~Xa~~	Xa	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	Xa	~~✓a~~Xa	Xa		Xa
Vlakte van de Raan SCI	~~✓a~~~~Xa~~	Xa	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	Xa	~~✓a~~Xa	Xa		Xa
Voordelta SCI	~~✓a~~~~Xa~~	Xa	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	Xa	~~✓a~~Xa	Xa		Xa
Waddenzee SCI	~~✓a~~~~Xa~~	Xa	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	Xa	~~✓a~~Xa	Xa		Xa
Westerschelde & Saeftinghe	~~✓a~~~~Xa~~	Xa	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~~~Xa~~	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	~~✓a~~Xa	Xa	~~✓a~~Xa	Xa		Xa
*Note that some sites may be considered separately for other feature(s), notably seals															

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Evidence supporting conclusions:

✓a	Effects cannot be screened out at this stage and therefore there is a potential for LSE. It is considered that there is a potential impact pathway for those effects which are screened in.
Xa	No potential for LSE. The sites have been screened out based on a lack of evidence to suggest connectivity.
Xa	Underwater Noise - during the operational phase potential impact ranges are not great enough to impact on individuals from transboundary sites.
Xa	Physical Habitat Loss/ Disturbance during all phases - Harbour porpoise are wide-ranging, using extensive supporting habitats. Given the distance to the nearest transboundary site (65 km), and the short-term, intermittent nature of VE's development impacts, no habitat loss or disturbance effects are expected, and therefore no LSE on any transboundary sites.
Xa	Accidental pollution and water quality during construction and decommissioning - based on the distance to the transboundary sites (65 km to the closest site), it is considered that there is no potential pathway for effect from this impact given the extent of the impact and influence of tidal factors.
Xa	Changes to prey during all phases - Harbour porpoise are wide-ranging with broad foraging habits. Given the nearest transboundary site is 65 km from VE, the short-term and intermittent nature of VE's impacts, and the RIAA/ES conclusions for benthic ecology and fish, no effects on harbour porpoise prey species are expected and therefore no indirect impacts on the species.

End of Matrix 22

HRA Screening Matrix 23: Transboundary Sites for Seals

Name of European site:	Transboundary sites for seals (Harbour seal; and Grey seal)																	
EU Code:	Various																	
Distance to Project:	Various																	
Likely Effects of Project																		
Effect	Underwater noise			Collision risk			Changes to prey			Accidental pollution and water quality			Physical habitat loss/ disturbance			Disturbance at haul out		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Bancs des Flandres SCI	√a	X b	√a	√c	√c	√c	√d	√d	√d	X b	X b	X b	√e	X b	√e	√ f	√ f	√ f
Vlaamse Banken SAC	√a	X b	√a	√c	√c	√c	√d	√d	√d	X b	X b	X b	√e	X b	√e	√ f	√ f	√ f
Doggersbank (Netherlands) SAC	√a	X b	√a	√c	√c	√c	√d	√d	√d	X b	X b	X b	√e	X b	√e	√ f	√ f	√ f
Klaverbank SCI	√a	X b	√a	√c	√c	√c	√d	√d	√d	X b	X b	X b	√e	X b	√e	√ f	√ f	√ f
Noordzeekustone SCI	√a	X b	√a	√c	√c	√c	√d	√d	√d	X b	X b	X b	√e	X b	√e	√ f	√ f	√ f
SBZ 1 SCI	√a	X b	√a	√c	√c	√c	√d	√d	√d	X b	X b	X b	√e	X b	√e	√ f	√ f	√ f
SBZ 2 SCI	√a	X b	√a	√c	√c	√c	√d	√d	√d	X b	X b	X b	√e	X b	√e	√ f	√ f	√ f
SBZ 3 SCI	√a	X b	√a	√c	√c	√c	√d	√d	√d	X b	X b	X b	√e	X b	√e	√ f	√ f	√ f
Vlakte van de Raan SCI	√a	X b	√a	√c	√c	√c	√d	√d	√d	X b	X b	X b	√e	X b	√e	√ f	√ f	√ f
Voordelta SCI	√a	X b	√a	√c	√c	√c	√d	√d	√d	X b	X b	X b	√e	X b	√e	√ f	√ f	√ f
Waddenzee SCI	√a	X b	√a	√c	√c	√c	√d	√d	√d	X b	X b	X b	√e	X b	√e	√ f	√ f	√ f
Westerschelde & Saeftinghe	√a	X b	√a	√c	√c	√c	√d	√d	√d	X b	X b	X b	√e	X b	√e	√ f	√ f	√ f
*Note that some sites may be considered separately for other feature(s), notably harbour porpoise																		

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Evidence supporting conclusions:

✓a Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between seals and underwater noise associated with VE.

Xb No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site, and the scale of the potential change.

✓c The location of the project relative to the at sea usage area of seals together with connectivity to the SAC may result in increased collision risk of seals (with vessels associated with activity relating to VE).

✓d Potential for site connectivity is indicated from seal use at sea data. Therefore, there is the potential for some level of interaction between seals and changes in prey associated with VE.

✓e The location of the project relative to the at sea usage area of seals together with connectivity to the SAC indicates the potential for seal habitat loss (caused by potential disturbance and barrier effects as a result of increases in underwater noise).

✓f It is not possible to screen out potential disturbance impacts at haul out sites for seals of this SAC since information on vessel use (movements, routes and levels of traffic) and the associated ports to be used is not yet available.

End of Matrix 23

HRA Screening Matrix 24: Outer Thames Estuary SPA

Name of European site:	**Outer Thames Estuary SPA**														
EU Code:	UK9020309A														
Distance to Project:	17.11 km to array area														
Likely Effects of Project															
Effect	Changes in prey availability and behaviour			Disturbance and displacement			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Red-throated diver	Xa	Xa	Xa	✓b	✓b	✓b	✓b	✓b	✓b		Xa				
Common tern	Xc	Xc	Xc	Xd	Xd	Xd	Xd	Xd	Xd	Xd	Xd	Xd	Xe	Xe	Xe
Little tern	Xf	Xf	Xf		Xg		Xg	Xg	Xg		Xh			Xi	

Evidence supporting conclusions:

Xa Red-throated divers have a large foraging range, the pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE from VE acting alone can be discounted in relation to changes in prey availability, collision and barrier effects.

✓b There is potential for disturbance and displacement of non-breeding red-throated divers within the SPA resulting from work activity/ vessel movements within the offshore ECC. Therefore, there is a potential for LSE. However, the VE array areas is beyond the maximum expected extent of displacement/disturbance for red-throated divers, therefore, LSE from VE acting both alone and in-combination can be discounted in relation to this effect.

Xc The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.

Xd This species has a very low vulnerability to disturbance from vessel movements associated with construction and decommissioning activity (Fliessbach et al.,2019). This species also has a low vulnerability to displacement (Bradbury et al. 2014) and barrier effect. Additionally, the ECC overlaps <1% (0.892%) of the Outer Thames Estuary SPA and therefore any displacement from this area during construction will have a negligible effect on habitat availability and prey resource Therefore, LSE from VE acting alone can be discounted in relation to these effects.

Xe This species has been screened out owing to low numbers recorded within the array (abundance estimate of 3.52 recorded in one month only across the two survey years).

Xf The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.

Xg Little tern in Outer Thames Estuary SPA breed on Scroby Sands intertidal sand bank, located 79 km from the ECC. This is well outside of the reported foraging ranges for the species (Thaxter ., 2012, 6.3+-2.4 km (MMF+-SD); Woodward ., 2019, 5 km (MMF)). In addition, little tern were not detected during the bird surveys of the VE site (March 2019 – February 2021). The species can thus be considered highly unlikely to have connectivity with the VE ECC, and as such, LSE can be discounted in relation to both alone and in-combination effects.

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Xh Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts in the array areas alone.

Xi Evidence shows that little tern are a strictly coastal, rather than marine species; they are the most inshore of all tern species, found in shallow waters on passage (BirdLife International, 2022). WWT & MacArthur Green (2014) found that little tern migrate within 10 km of the shoreline. In addition, little tern were not detected during the bird surveys of the VE site (March 2019 – February 2021). Based on the information outlined above, the species can thus be considered highly unlikely to have connectivity with the VE array area, and as such, LSE can be discounted in relation to both alone and in-combination effects.

End of Matrix 24

HRA Screening Matrix 25: Alde-Ore Estuary SPA

Name of European site:	**Alde-Ore Estuary SPA**											
EU Code:	UK9009112											
Distance to Project:	37.31 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Lesser black-backed gull	Xa	Xa	Xa		Xb			Xb			✓c	
Sandwich tern	Xa	Xa	Xa		Xd			Xd			Xd	
Little tern	Xa	Xa	Xa	Xg	Xg	Xg		Xg			Xh	
Avocet	Xa	Xa	Xa	Xg	Xg	Xg		Xg			✓i	
Redshank	Xa	Xa	Xa	Xg	Xg	Xg		Xg			✓i	
Ruff	Xa	Xa	Xa	Xg	Xg	Xg		Xg			✓i	
Marsh Harrier	Xa	Xa	Xa	Xg	Xg	Xg		Xg			Xj	

Evidence supporting conclusions:

Xa The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.

Xb This species has no very low vulnerability to displacement or disturbance and barrier effects from OWF and vessel disturbance (Bradbury et al., 2014; Fliessbach et al., 2019). Therefore, LSE can be discounted in relation to this effect alone.

✓c This SPA is within the MMF+1SD for lesser back-backed gull and therefore there may be connectivity during the breeding season for this species as it has a very high vulnerability to collision risk with turbines (Bradbury et al., 2014). Therefore, there is potential for LSE, consider collision risk with turbines for all seasons within the RIAA.

Xd This species has been screened out owing to low numbers recorded within the array; only two individuals were recorded throughout the entire two survey years (both birds recorded in year one, in April and October respectively, no birds recorded in year two). Furthermore, Alde Ore Estuary SPA is beyond mean max foraging range (but within mean max foraging range +-1SD) of the VE array.

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✓e	This SPA is within MMF+1SD for sandwich tern of the array areas and therefore may have connectivity during the breeding season. As this species is vulnerable to displacement, barrier effects cannot be ruled out. Therefore, there is a potential for LSE.
✓f	This species has moderate vulnerability to collision risk with turbines (Bradbury et al. 2014). Given the proximity VE to the SPA, effects cannot be screened out at this stage alone. Therefore, there is a potential for LSE.
Xg	Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts in the array areas alone. The SPA is not within MMF+1SD of the offshore ECC. Therefore, effects can be ruled out at this stage for displacement in the offshore ECC. Therefore, LSE can be discounted for this impact alone.
Xh	Evidence shows that little tern are a strictly coastal, rather than marine species; they are the most inshore of all tern species, found in shallow waters on passage (BirdLife International, 2022). WWT & MacArthur Green (2014) found that little tern migrate within 10 km of the shoreline. In addition, little tern were not detected during the bird surveys of the VE site (March 2019 – February 2021). Based on the information outlined above, the species can thus be considered highly unlikely to have connectivity with the VE array area, and as such, LSE can be discounted in relation to both alone and in-combination effects.
✓i	While this SPAis a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.
Xj	Alde-Ore Estuary SPA lies directly to the west of the VE array. With migratory marsh harrier migrating to Southern Europe and sub-Saharan Africa (i.e. in a southerly direction) (Wright .,2012), it can be considered highly unlikely that migrating marsh harrier from this SPA have connectivity with the VE array located to the east, and as such, LSE can be discounted in relation to both alone and in-combination effect.

End of Matrix 25

HRA Screening Matrix 26: Minsmere-Walberswick SPA

Name of European site:	**Minsmere-Walberswick SPA**											
EU Code:	UK9009101											
Distance to Project:	41.75 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Little tern	Xa	Xa	Xa	Xb	Xb	Xb		Xa			Xc	
Wintering populations of: Avocet											✓d	
Marsh Harrier											Xe	
Nightjar											Xf	
Waterbirds: Bittern; Gadwall; Greater white-fronted goose; Hen harrier; Shoveler; Teal											✓g	

Evidence supporting conclusions:

Xa The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.

Xb This SPA is outside of the MMF+1SD for little tern from the array areas area, therefore, there is unlikely to be connectivity during the breeding season. Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts during all phases alone. The SPA is not within MMF+1SD of the offshore ECC. Therefore, effects can be ruled out at this stage for displacement in the offshore ECC. Therefore, LSE can be discounted for this impact alone.

Xc Evidence shows that little tern are a strictly coastal, rather than marine species; they are the most inshore of all tern species, found in shallow waters on passage (BirdLife International, 2022). WWT & MacArthur Green (2014) found that little tern migrate within 10 km of the shoreline. In addition, little tern were not detected during the bird surveys of the VE site (March 2019 – February 2021). Based on the information outlined above, the species can thus be considered highly unlikely to have connectivity with the VE array area, and as such, LSE can be discounted in relation to both alone and in-combination effects.

✓d While this SPAis a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

Xe Minsmere-Walberswick SPA lies directly to the west of the VE array. With migratory marsh harrier migrating to Southern Europe and sub-Saharan Africa (i.e. in a southerly direction) (Wright et al. 2012), it can be considered highly unlikely that migrating marsh harrier from this SPA have connectivity with the VE array located to the east, and as such, LSE can be discounted in relation to both alone and in-combination effects

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Xf Minsmere-Walberswick SPA lies directly to the west of the VE array. Nightjar migrate south to winter in the Democratic Republic of Congo, and tracking data has shown that migrating individuals move in a clear southerly direction (Evens et al., 2017). For that reason, it can be considered highly unlikely to that migrating nightjar from this SPA have connectivity with the VE arrav located to the east, and as such, LSE can be discounted in relation to both alone and in-combination effects.

✓g Risk of collision on migration.

End of Matrix 26

HRA Screening Matrix 27: Minsmere-Walberswick Ramsar

Name of European site:	**Minsmere-Walberswick Ramsar**											
EU Code:												
Distance to Project:	41.88 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Little tern	Xa	Xa	Xa	Xb	Xb	Xb		Xa		Xc	Xc	Xc
Black headed gull	Xd	Xd	Xd	Xd	Xd	Xd					Xd	
Mediterranean gull	Xd	Xd	Xd	Xd	Xd	Xd					Xd	
Bittern	Xd	Xd	Xd	Xd	Xd	Xd					✓e	
Gadwall	Xd	Xd	Xd	Xd	Xd	Xd					✓e	
Teal	Xd	Xd	Xd	Xd	Xd	Xd					✓e	
Shoveler	Xd	Xd	Xd	Xd	Xd	Xd					✓e	
Marsh harrier	Xd	Xd	Xd	Xd	Xd	Xd					✓e	
Avocet	Xd	Xd	Xd	Xd	Xd	Xd					✓e	
Bearded tit	Xd	Xd	Xd	Xd	Xd	Xd					✓e	

Evidence supporting conclusions:

Xa The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.

Xb This Ramsar is outside of the MMF+1SD for little tern from the array areas area, therefore, there is unlikely to be connectivity during the breeding season. Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts during all phases alone. The Ramsar is not within MMF+1SD of the offshore ECC. Therefore, effects can be ruled out at this stage for displacement in the offshore ECC. Therefore, LSE can be discounted for this impact alone.

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Xc Evidence shows that little tern are a strictly coastal, rather than marine species; they are the most inshore of all tern species, found in shallow waters on passage (BirdLife International, 2022). WWT & MacArthur Green (2014) found that little tern migrate within 10 km of the shoreline. In addition, little tern were not detected during the bird surveys of the VE site (March 2019 – February 2021). Based on the information outlined above, the species can thus be considered highly unlikely to have connectivity with the VE array area, and as such, LSE can be discounted in relation to both alone and in-combination effects.

Xd This Ramsar is outside of the MMF+1SD for these species from the array areas area, therefore, there is unlikely to be connectivity during the breeding season. Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts during all phases alone. The Ramsar is not within MMF+1SD of the offshore ECC. Therefore, effects can be ruled out at this stage for displacement in the offshore ECC. Therefore, LSE can be discounted for this impact alone.

✓e While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al. (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

End of Matrix 27

HRA Screening Matrix 28: Hamford Water SPA

Name of European site:	**HAMFORD WATER SPA**																							
EU Code:	UK9009131																							
Distance to Project:	51.04 km to array area																							
Likely Effects of Project																								
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			Pollution (water quality)			Pollution (air quality)			Decreases in water quantity			Loss of foraging and roosting habitat outside the SPA		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Little tern	Xa	Xa	Xa	Xb	Xb	Xb		Xc		Xd	Xd	Xd												
Wintering populations of: Avocet; Black-tailed godwit; Dark-bellied brent goose; Grey plover; Redshank; Ringed plover; Shelduck, Teal				✓e	✓ e	✓ e							✓f		✓f	✓g		✓g	✓h			✓h		

Evidence supporting conclusions:

Xa The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.

Xb The SPA is within MMF+1SD of the offshore ECC. Therefore, effects cannot be screened out at this stage for displacement in the offshore ECC. Therefore, there is a potential for LSE.

Xc Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts in the array areas alone.

Xd Evidence shows that little tern are a strictly coastal, rather than marine species; they are the most inshore of all tern species, found in shallow waters on passage (BirdLife International, 2022). WWT & MacArthur Green (2014) found that little tern migrate within 10 km of the shoreline. In addition, little tern were not detected during the bird surveys of the VE site (March 2019 – February 2021). Based on the information outlined above, the species can thus be considered highly unlikely to have connectivity with the VE array area, and as such, LSE can be discounted in relation to both alone and in-combination effects.

✓e Risk of impacts from disturbance during construction, operation and decommissioning for wintering bird species which occur in or adjacent to the ECC.

✓f The surface water in the onshore ECC partly drains into the Stour Estuary, giving rise to a low risk of impacts on water quality such as changes natural turbidity, concentration of aqueous contaminants, dissolved oxygen and inorganic nitrogen, with knock-on effects for wintering and passage birds.

✓g Potential for LSE on all qualifying features which occur within or near the ECC (currently known to be avocet, black-tailed godwit, dark-bellied brent goose, redshank, shelduck, teal and others in the waterbird assemblage, if these form part of the SPA population).

✓h The surface water in the ECC partly drains into Hamford Water, giving rise to a low risk of impacts on water quality, such as changes in natural turbidity, concentration of aqueous contaminants, dissolved oxygen and inorganic nitrogen, with knock-on effects for wintering birds.

End of Matrix 28

HRA Screening Matrix 29: Thanet Coast and Sandwich Bay SPA

Name of European site:	Thanet Coast and Sandwich Bay SPA								
EU Code:	UK9012071								
Distance to Project:	57.64 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Little tern	Xa	Xa	Xa	Xb	Xb	Xb		Xb	

Evidence supporting conclusions:

Xa The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effect alone.

Xb Migratory birds may pass windfarms during their migrations; however, are at low risk of adverse impacts from displacement and barrier effect. The cost of one-off avoidances during migration are trivial, accounting for less than 2% of available fat reserves (Speakman et al., 2009 – sandwich tern). Therefore, LSE can be discounted for displacement impacts in the array areas alone. The SPA is not within MMF+1SD of the offshore ECC. Therefore, effects can be ruled out at this stage for displacement in the offshore ECC. Therefore, LSE can be discounted for this impact alone.

End of Matrix 29

HRA Screening Matrix 30: Greater Wash SPA

Name of European site:	Greater Wash SPA											
EU Code:	UK9020329											
Distance to Project:	62.77 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Sandwich tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa				
Common tern	Xb	Xb	Xb	Xb	Xb	Xb		Xb				
Little tern	Xc	Xc	Xc	Xc	Xc	Xc		Xc				
Little gull	Xd		Xd	Xe	Xe	Xe					Xd	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD for sandwich tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD for common tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

Xc This SPA is not within the MMF+1SD for little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

Xd This species has been screened out based on the fact that Greater Wash SPA is located >62 km north of both the VE array and ECC. As the species breeds north of the SPA, there is no interaction with the VE array and ECC

Xe Following Bradbury 2014, little gull has moderate collision vulnerability but very low displacement risk.

End of Matrix 30

HRA Screening Matrix 31: Colne Estuary (Mid-Essex Coast Phase 2) SPA

Name of European site:	**Colne Estuary (Mid-Essex Coast Phase 2) SPA**																										
EU Code:	UK9009243																										
Distance to Project:	66.51 km to array area																										
Likely Effects of Project																											
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			INNS			Changes to physical processes		
Stage of Development	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
Little tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa																			
Over winter: Dark-bellied brent goose; Pochard; Redshank; Ringed plover; Waterbird assemblage											✓b																
Ramsar criterion 1													Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc
Ramsar criterion 2													Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc
Ramsar criterion 3													Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD for little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

✓b While this SPA/ Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

Xc No potential for LSE as the site sits beyond the benthic subtidal study area as defined by the secondary Zone of Influence (ZoI) and therefore has been screened out.

End of Matrix 31

HRA Screening Matrix 32: Foulness (Mid-Essex Coast Phase 5) SPA

Name of European site:	**Foulness (Mid-Essex Coast Phase 5) SPA**								
EU Code:	UK9009246								
Distance to Project:	67.36 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Sandwich tern	Xa	Xb	Xa	Xa	Xb	Xa		Xb	
Common tern	Xa	Xb	Xa	Xa	Xb	Xa		Xb	
Little tern	Xc	Xc	Xc	Xc	Xc	Xc		Xc	

Evidence supporting conclusions:

Xa These species have very low vulnerability to disturbance from vessel movements associated with construction and decommissioning activity (Fliessbach et al., 2019). Therefore, LSE can be discounted in relation to C&D disturbance and displacement effects alone.

Xb This SPA is not within the MMF+1SD of the array areas for sandwich tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to O&M effects alone.

Xc This SPA is not within the MMF+1SD for little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 32

HRA Screening Matrix 33: Breydon Water SPA

Name of European site:	Breydon Water SPA								
EU Code:	UK9009181								
Distance to Project:	72.55 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Common tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for common tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 33

HRA Screening Matrix 34: Blackwater Estuary SPA

Name of European site:	**Blackwater Estuary (Mid-Essex Coast Phase 4) SPA**																											
EU Code:	UK9009245																											
Distance to Project:	77.55 km to array area																											
Likely Effects of Project																												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			Loss of foraging and roosting habitat outside the SPA			Disturbance / displacement of birds outside SPA			Water quality			Decreases in water quantity			Decreases in air quality		
Stage of Development	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	
Little tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa																				
Non-breeding: Black-tailed godwit; Dark-bellied Brent goose; Dunlin; and Grey plover.											✓b																	
Non-breeding: Black-tailed godwit; Dark-bellied Brent goose; Dunlin; Grey plover; Hen harrier; Waterbird assemblage; Breeding; Pochard; Ringed Plover													✓c	✓c	✓c	✓c	✓c	✓c	Xd	Xd	Xd	Xd	Xd	Xd	Xe	Xe	Xe	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA collision impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

✓b While this SPAis a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

✓c The Blackwater Estuary SPA is much further from the ECC than the other sites considered above. Nevertheless, two species that make up its qualifying interest (black-tailed godwit, dark-bellied brent goose and dunlin) have been recorded in the onshore ECC and there is potential for individuals to move between the ECC and the Blackwater Estuary. The risk of effects from loss of habitat and disturbance during construction, operation and decommissioning is much lower but not absent.

Xd There are no or very weak hydrological links (i.e., linked via the sea only) between the ECC and the Blackwater Estuary and so effects from pollution and dewatering can be discounted.

Xe Given the distance, air quality effects can be discounted.

End of Matrix 34

HRA Screening Matrix 35: Blackwater Estuary Ramsar

Name of European site:	**Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar**																													
EU Code:	UK9009245																													
Distance to Project:	77.55 km to array area																													
Likely Effects of Project																														
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk			Loss of foraging and roosting habitat outside the SPA			Disturbance / displacement of birds outside SPA			Water quality			Decreases in water quantity			Decreases in air quality			Impacts on supporting populations of plants and invertebrates outside the Ramsar		
Stage of Development	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
Little tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa																						
Non-breeding: Black-tailed godwit; Dark-bellied Brent goose; Dunlin; Grey plover; Waterbird assemblage											✓b																			
Non-breeding: Black-tailed godwit; Dark-bellied Brent goose; Dunlin; Grey plover; Hen harrier; Waterbird assemblage; Breeding; Pochard; Ringed Plover													✓c	✓c	✓c	✓c	✓c	✓c	Xd	Xd	Xd	Xd	Xd	Xd	Xe	Xe	Xe			
Wetland invertebrate assemblage																												✓f	✓f	✓f
Wetland plant assemblage																												✓f	✓f	✓f

Evidence supporting conclusions:

Xa This Ramsar is not within the MMF+1SD of the array areas and offshore ECC for little tern and therefore is unlikely to have connectivity during the breeding season. For this Ramsar collision impacts on migration are likely to be negligible due to the distance from the Ramsar to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

✓b While this Ramsar is a significant distance from the VE array area and previous assessments (WWT, 2014) of migratory non-seabirds at a cumulative scale have shown impacts at a population level are unlikely, these species have the potential to migrate through the array areas (according to the migration zones presented in Wright et al (2012)) and therefore there is the potential for collision. Therefore, LSE cannot be discounted in relation to effects alone.

✓c The Blackwater Estuary Ramsar is much further from the ECC than the other sites considered above. Nevertheless, two species that make up its qualifying interest (black-tailed godwit, dark-bellied brent goose and dunlin) have been recorded in the onshore ECC and there is potential for individuals to move between the ECC and the Blackwater Estuary. The risk of effects from loss of habitat and disturbance during construction, operation and decommissioning is much lower but not absent.

Xd There are no or very weak hydrological links (i.e., linked via the sea only) between the ECC and the Blackwater Estuary and so effects from pollution and dewatering can be discounted.

Xe Given the distance, air quality effects can be discounted.

✓f There is a potential for supporting features to be impacted and therefore LSE is considered.

End of Matrix 35

HRA Screening Matrix 36: Medway Estuary and Marshes SPA

Name of European site:	**Medway Estuary and Marshes SPA**								
EU Code:	UK9012031								
Distance to Project:	96.42 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Little turn; Common tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for common tern and little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 36

HRA Screening Matrix 37: Dungeness, Romney Marsh and Rye Bay SPA

Name of European site:	**Dungeness, Romney Marsh and Rye Bay SPA**								
EU Code:	UK9012091								
Distance to Project:	103.34 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Little turn; Common tern; and Sandwich tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for common tern, little tern and sandwich tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 37

HRA Screening Matrix 38: North Norfolk Coast SPA

Name of European site:	**North Norfolk Coast SPA**								
EU Code:	UK9009031								
Distance to Project:	126.13 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Little turn; Common tern; and Sandwich tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for little tern, common tern and sandwich tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 38

HRA Screening Matrix 39: North Norfolk Coast Ramsar

Name of European site:	North Norfolk Coast Ramsar								
EU Code:									
Distance to Project:	126.13 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Little turn; Common tern; and Sandwich tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This Ramsar is not within the MMF+1SD of the array areas and offshore ECC for common tern, little tern and sandwich tern and therefore is unlikely to have connectivity during the breeding season. For this Ramsar impacts on migration are likely to be negligible due to the distance from the Ramsar to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 39

HRA Screening Matrix 40: The Wash SPA

Name of European site:	The Wash SPA								
EU Code:	UK9008021								
Distance to Project:	146.29 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Little turn; Common tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for common tern and little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 40

HRA Screening Matrix 41: Gibraltar Point SPA

Name of European site:	Gibraltar Point SPA								
EU Code:	UK9008022								
Distance to Project:	170.97 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Little tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 41

HRA Screening Matrix 42: Humber Estuary SPA

Name of European site:	Humber Estuary SPA								
EU Code:									
Distance to Project:	197.19 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Little tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 42

HRA Screening Matrix 43: Flamborough and Filey Coast SPA

Name of European site:	**Flamborough and Filey Coast SPA**															
EU Code:	UK9006101															
Distance to Project:	275.50 km to array area															
Likely Effects of Project																
Effect	Changes in prey availability and behaviour			Collision risk			Direct Disturbance and Displacement			Barrier effects			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Kittiwake	Xa	Xa	Xa		✓b						Xc				
Gannet	✓d	✓d	✓d		✓d		✓e	✓e	✓e		Xf		✓g	✓g	✓g
Guillemot							✓e	✓e	✓e						
Razorbill							✓e	✓e	✓e						
Fulmar; Puffin; Herring gull				Xf	Xf	Xf									

Evidence supporting conclusions:

Xa Despite the Array being within the species MMF+1SD (Woodward et al. 2019) from this site, tracking data (FAME tracking data collected by the RSPB) and habitat utilisation modelling based on tracking data (Cleasby et al. 2020) show no connectivity during the breeding season. However, there is potential for connectivity during the non-breeding season only.

✓b This species has high vulnerability to collision risk with turbines (Bradbury et al., 2014). Effects cannot be screened out at this stage alone for this species during the non-breeding season. Therefore, there is a potential for LSE.

Xc 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 alone.

✓d Based on the proximity of the Array and the MMF+1SD of this species (Woodward et al. 2019) from this site, potential for connectivity during the breeding season has been established. Gannets have shown high avoidance during offshore wind farms post-construction monitoring (Dierschke, Furness & Garth, 2016). Gannets have high collision risk (Bradbury et al., 2014). Therefore, there is a potential for LSE for C&D and O&M displacement and collision risk.

✓e VE is beyond the MMF +1SD for this species from Flamborough and Filey Coast SPA, there will be no breeding season barrier impact for this population, therefore LSE can be ruled out alone. The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effects alone for the breeding season. However, connectivity during the non-breeding season means that LSE cannot be discounted

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Xf	Gannets are not considered at risk of barrier effects due to their wide ranging habits, 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 alone.
✓g	According to Furness (2015) it is possible for a project in the southern North Sea to have connectivity with this SPA during the non-breeding season. Therefore, since qualifying breeding features may still be afforded protection outside of the breeding season (the conservation objectives of all breeding seabird SPAs include the requirement to maintain abundance) activities that have the potential to significantly reduce abundance should be assessed regardless of time of year. The combined impacts from both collision risk and displacement will be included within the RIAA.
Xh	Peak puffin density in the array areas and 4km buffer was estimated to be 0.01 (0.01); peak fulmar density in the array areas and 4km buffer was estimated to be 0.1; and peak herring gull density in the array areas and 4km buffer was estimated to be 0.14. Given these extremely low densities within the VE site and that these species have very low vulnerabilities to collision and displacement from offshore wind farms (Bradbury et al., 2014) and low vulnerability to vessel traffic (Fliessbach et al., 2019) LSE can be discounted in relation to effects alone.

End of Matrix 43

HRA Screening Matrix 44: Teesmouth and Cleveland Coast SPA

Name of European site:	Teesmouth and Cleveland SPA								
EU Code:	UK9006061								
Distance to Project:	359.98 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Little tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for little tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 44

HRA Screening Matrix 45: Northumbria Coast SPA

Name of European site:	Northumbria Coast SPA								
EU Code:	UK9006131A								
Distance to Project:	377.99 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Arctic tern; Little tern		Xa			Xa			Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for little tern and Arctic tern and therefore is unlikely to have connectivity during the breeding season. For this SPA impacts on migration are likely to be negligible due to the distance from the SPA to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 45

HRA Screening Matrix 46: Northumbria Coast Ramsar

Name of European site:	Northumbria Coast Ramsar								
EU Code:	UK9006131								
Distance to Project:	377.99 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Little tern		Xa			Xa			Xa	

Evidence supporting conclusions:

Xa This Ramsar is not within the MMF+1SD of the array areas and offshore ECC for little tern and therefore is unlikely to have connectivity during the breeding season. For this Ramsar impacts on migration are likely to be negligible due to the distance from the Ramsar to the VE array areas site. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 46

HRA Screening Matrix 47: Northumberland Marine SPA

Name of European site:	Northumberland Marine SPA								
EU Code:	UK9006101								
Distance to Project:	419.87 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa	
Kittiwake; Sandwich tern; Common tern; Arctic tern; Guillemot; Little tern; Puffin; Roseate tern; Black-headed gull; Lesser black-backed gull; Herring gull; Razorbill	Xb	Xb	Xb	Xb	Xb	Xb		Xb	

Evidence supporting conclusions:

Xa For this SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for kittiwake, sandwich tern, common tern, Arctic tern and guillemot. For all other species at this SPA site, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 47

HRA Screening Matrix 48: Coquet Island SPA

Name of European site:	Coquet Island SPA								
EU Code:	UK9006031								
Distance to Project:	443.00 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa	
Kittiwake; Sandwich tern; Common tern; Arctic tern; Guillemot; Little tern; Puffin; Roseate tern; Black-headed gull; Lesser black-backed gull; Herring gull; Razorbill	Xb	Xb	Xb	Xb	Xb	Xb		Xb	
Puffin	Xc	Xc	Xc	Xc	Xc	Xc		Xc	

Evidence supporting conclusions:

Xa For these SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for sandwich tern, common tern and Arctic tern. For all other species at this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xc This SPA is not within the MMF+1SD of the array areas and offshore ECC for any of this feature. Peak puffin density in the array areas and 4km buffer was estimated to be 0.01 (0.01). Given the extremely low density within the VE site it is considered that there is no potential for LSE.

End of Matrix 48

HRA Screening Matrix 49: Farne Islands SPA

Name of European site:	Farne Islands SPA								
EU Code:	UK9006021								
Distance to Project:	472.54 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa	
Kittiwake; Herring gull; Gannet; Arctic tern; Common tern; Sandwich tern; Roseate tern	Xb	Xb	Xb	Xb	Xb	Xb		Xb	
Puffin	Xc	Xc	Xc	Xc	Xc	Xc		Xc	
Guillemot; Razorbill;	Xd	Xd	Xd	✓e	✓e	✓e		Xd	

Evidence supporting conclusions:

Xa For this SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for any of these features. For these SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xc This SPA is not within the MMF+1SD of the array areas and offshore ECC for any of these features; however, since breeding features are afforded protection outside of the breeding season and there is the potential for these features to winter in southern North Sea (even in very small numbers), there is the potential for connectivity between this SPA and VE, expect for puffin since peak puffin density in the array areas and 4km buffer was estimated to be 0.01 (0.01). Given the extremely low density within the VE site it is considered that there is no potential for LSE on puffin.

Xd For guillemot and razorbill, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally and for these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible.

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✓e VE is beyond the MMF +1SD for this species from Farne Islands SPA, there will be no breeding season barrier impact for this population, therefore LSE can be ruled out alone. The pathway to effects due to insufficient prey resource is weak for this highly mobile receptor. Temporary and low-impact effects are anticipated for local fish and benthic ecology. As such, there would be sufficient alternative resource available to support the species population. Therefore, LSE can be discounted in relation to effects alone for the breeding season. However, connectivity during the non-breeding season means that LSE cannot be discounted.

End of Matrix 49

HRA Screening Matrix 50: Aberdaron Coast and Bardsey Island SPA

Name of European site:	Aberdaron Coast and Bardsey Island SPA								
EU Code:	UK9013121								
Distance to Project:	466.73 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Manx shearwater	Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Additionally, the site specific maximum foraging range from this SPA for Manx shearwater is 162km (Woodward et al., 2019), therefore the site is unlikely to have connectivity with VE. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 50

HRA Screening Matrix 51: Lindisfarne SPA

Name of European site:	Lindisfarne SPA								
EU Code:	UK9006011								
Distance to Project:	476.16 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Little tern; Roseate tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for little tern and Roseate tern. For these SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 51

HRA Screening Matrix 52: Skomer Skokholm and the Seas off Pembrokeshire

Name of European site:	Skomer Skokholm and the Seas off Pembrokeshire SPA								
EU Code:	UK9014051								
Distance to Project:	478.97 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Manx shearwater	Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 52

HRA Screening Matrix 53: St Abb's Head to Fast Castle SPA

Name of European site:	**St Abb's Head to Fast Castle SPA**								
EU Code:	UK9004271								
Distance to Project:	515.55 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Kittiwake; Guillemot; Herring gull; and Razorbill	Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for kittiwake, guillemot, herring gull and razorbill. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 53

HRA Screening Matrix 54: Grassholm SPA

Name of European site:	Grassholm SPA								
EU Code:	UK9014041								
Distance to Project:	515.55 km to array area								
Likely Effects of Project									
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects		
Stage of Development	C	O	D	C	O	D	C	O	D
Gannet	Xa	Xa	Xa	Xa	Xa	Xa		Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Additionally, when considering that seabirds are likely to travel around land masses to forage, the maximum foraging range for gannet is within proximity of VE (Woodward et al., 2019). Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 54

HRA Screening Matrix 55: Imperial Dock Lock, Leith SPA

Name of European site:	Imperial Dock Lock, Leith SPA											
EU Code:	UK9004451											
Distance to Project:	563.20 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Common tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 55

HRA Screening Matrix 56: Forth Islands SPA

Name of European site:	Forth Islands SPA											
EU Code:	UK9004171											
Distance to Project:	547.90 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Arctic tern; Common tern; Gannet; Guillemot; Kittiwake, Lesser black-backed gull; Herring gull; Razorbill; Sandwich tern; Puffin; and Roseate tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 56

HRA Screening Matrix 57: Ailsa Craig SPA

Name of European site:	Ailsa Craig SPA											
EU Code:	UK9003091											
Distance to Project:	596.44 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Gannet	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 57

HRA Screening Matrix 58: Fowlsheugh SPA

Name of European site:	Fowlsheugh SPA											
EU Code:	UK9002271											
Distance to Project:	611.79 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Razorbill; Herring gull; Kittiwake; and Guillemot	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 58

HRA Screening Matrix 59: Isles of Scilly SPA

Name of European site:	Isles of Scilly SPA											
EU Code:	UK9020288											
Distance to Project:	617.31 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Manx shearwater; and Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Lesser black-backed gull; European shag; Greater black-backed gull, European storm-petrel	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA site, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 59

HRA Screening Matrix 60: Ythan Estuary, of Sands of Foryie and Meikle Loch SPA

Name of European site:	Ythan Estuary, of Sands of Foryie and Meikle Loch SPA											
EU Code:	UK9002221											
Distance to Project:	647.67 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Common tern; Sandwich tern; Little tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa This SPA sites are not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 60

HRA Screening Matrix 61: Ythan Estuary, Sands of Foryie and Meikle Loch Ramsar

Name of European site:	Ythan Estuary, of Sands of Foryie and Meikle Loch Ramsar											
EU Code:	UK9002221											
Distance to Project:	647.67 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Sandwich tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa This Ramsar site are not within the MMF+1SD of the array areas and offshore ECC for these species. For thisRamsar sites, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 61

HRA Screening Matrix 62: Buchan Ness to Collieston Coast SPA

Name of European site:	Buchan Ness to Collieston Coast SPA											
EU Code:	UK9002491											
Distance to Project:	647.97 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Herring gull; Kittiwake; and Guillemot	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Additionally, the site-specific maximum foraging range from this SPA for Fulmar is 224km (Woodward et al., 2019), therefore the site is unlikely to have connectivity with VE. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 62

HRA Screening Matrix 63: Rathlin Island SPA

Name of European site:	Rathlin Island SPA											
EU Code:	UK9020011											
Distance to Project:	656.74 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 63

HRA Screening Matrix 64: Loch of Strathbeg SPA

Name of European site:	Loch of Strathbeg SPA											
EU Code:	UK9002211											
Distance to Project:	675.36 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Sandwich tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 64

HRA Screening Matrix 65: Troup, Pennan and Lion's Heads SPA

Name of European site:	**Troup, Pennan and Lion's Heads SPA**											
EU Code:	UK9002471											
Distance to Project:	689.82 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Kittiwake; Guillemot; Razorbill; Herring gull	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 65

HRA Screening Matrix 66: Inner Moray Firth SPA

Name of European site:	Inner Moray Firth SPA											
EU Code:	UK9020313											
Distance to Project:	733.22 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Common tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for this species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 66

HRA Screening Matrix 67: Cromarty Firth SPA

Name of European site:	Cromarty Firth SPA											
EU Code:	UK9001623											
Distance to Project:	746.03 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Common tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for this species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 67

HRA Screening Matrix 68: Rum SPA

Name of European site:	Rum SPA											
EU Code:	UK9001341											
Distance to Project:	767.14 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Manx shearwater	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 68

HRA Screening Matrix 69: East Caithness Cliffs SPA

Name of European site:	East Caithness Cliffs SPA											
EU Code:	UK0030143											
Distance to Project:	772.54 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Herring gull; Great black-backed gull; Kittiwake; Guillemot; and Razorbill	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Additionally, the site specific maximum foraging range from this SPA for Fulmar is 240km (Woodward et al., 2019), therefore the site is unlikely to have connectivity with VE. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 69

HRA Screening Matrix 70: North Caithness Cliffs SPA

Name of European site:	North Caithness Cliffs SPA											
EU Code:	UK9001181											
Distance to Project:	801.84 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Kittiwake; Guillemot; and Razorbill	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 70

HRA Screening Matrix 71: Copinsay SPA

Name of European site:	**Copinsay SPA**											
EU Code:	UK9002151											
Distance to Project:	822.56 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Great black-backed gull; Kittiwake; and Guillemot	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Additionally, the site specific maximum foraging range from this SPA for Fulmar is 480km (Woodward et al., 2019), therefore the site is unlikely to have connectivity with VE. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 71

HRA Screening Matrix 72: Mingulay and Berneray SPA

Name of European site:	Mingulay and Berneray SPA											
EU Code:	UK9001121											
Distance to Project:	823.05 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 72

HRA Screening Matrix 73: Hoy SPA

Name of European site:	Hoy SPA											
EU Code:	UK9002141											
Distance to Project:	826.27 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Great skua; Great black-backed gull; Kittiwake; Guillemot; and Puffin	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 73

HRA Screening Matrix 74: Auskerry (UK) SPA

Name of European site:	Auskerry (UK) SPA											
EU Code:	UK9002381											
Distance to Project:	836.68 to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
European storm petrel; Arctic tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 74

HRA Screening Matrix 75: Handa SPA

Name of European site:	Handa SPA											
EU Code:	UK9001241											
Distance to Project:	845.66 to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 75

HRA Screening Matrix 76: Shiant Isles SPA

Name of European site:	Shiant Isles SPA											
EU Code:	UK9001041											
Distance to Project:	845.66 to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 76

HRA Screening Matrix 77: Cape Wrath SPA

Name of European site:	Cape Wrath SPA											
EU Code:	UK9001231											
Distance to Project:	854.49 to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 77

HRA Screening Matrix 78: Calf of Eday SPA

Name of European site:	**Calf of Eday SPA**											
EU Code:	UK9002431											
Distance to Project:	858.73 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Great black-backed gull; Kittiwake; and Guillemot	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 78

HRA Screening Matrix 79: Rousay SPA

Name of European site:	Rousay SPA											
EU Code:	UK9002371											
Distance to Project:	859.68 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Guillemot; Arctic tern; and Kittiwake	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 79

HRA Screening Matrix 80: Marwick Head SPA

Name of European site:	Marwick Head SPA											
EU Code:	UK9002121											
Distance to Project:	861.96 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Kittiwake; and Guillemot	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 80

HRA Screening Matrix 81: Fair Isle SPA

Name of European site:	Fair Isle SPA											
EU Code:	UK9002091											
Distance to Project:	865.48 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar; Great skua	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Arctic tern; Kittiwake; Gannet; Guillemot; Razorbill; and Puffin	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Additionally, the site specific maximum foraging range from this SPA for Fulmar is 247km (Woodward et al., 2019), therefore the site is unlikely to have connectivity with VE. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 81

HRA Screening Matrix 82: West Westray SPA

Name of European site:	West Westray SPA											
EU Code:	UK9002101											
Distance to Project:	870.21 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Guillemot; Razorbill; and Arctic tern	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xb These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPAs, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 82

HRA Screening Matrix 83: Papa Westray (North Hill and Holm) SPA

Name of European site:	Papa Westray (North Hill and Holm) SPA											
EU Code:	UK9002111											
Distance to Project:	876.22 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Arctic tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPAs, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 83

HRA Screening Matrix 84: Sule Skerry and Sule Stack SPA

Name of European site:	Sule Skerry and Sule Stack SPA											
EU Code:	UK9002181											
Distance to Project:	884.2 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Guillemot; Gannet; European storm petrel; Leach's storm petrel; and Puffin	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPAs, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 84

HRA Screening Matrix 85: Sumburgh Head SPA

Name of European site:	Sumburgh Head SPA											
EU Code:	UK9002511											
Distance to Project:	897.16 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Arctic tern; Kittiwake; Guillemot	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xb These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPAs, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 85

HRA Screening Matrix 86: Mousa SPA

Name of European site:	Mousa SPA											
EU Code:	UK9002361											
Distance to Project:	912.79 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
European storm petrel; and Arctic tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPAs, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 86

HRA Screening Matrix 87: Noss SPA

Name of European site:	Noss SPA											
EU Code:	UK9002081											
Distance to Project:	923.70 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Great skua; and Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Gannet; Kittiwake; Guillemot; and Puffin	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 87

HRA Screening Matrix 88: Flannan Isles SPA

Name of European site:	Flannan Isles SPA											
EU Code:	UK9001021											
Distance to Project:	928.89 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 88

HRA Screening Matrix 89: St Kilda SPA

Name of European site:	St Kilda SPA											
EU Code:	UK9020332											
Distance to Project:	932.16 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar; and Manx shearwater	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Gannet	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 89

HRA Screening Matrix 90: North Rona and Sula Sgeir SPA

Name of European site:	North Rona and Sula Sgeir SPA											
EU Code:	UK9001011											
Distance to Project:	933.85 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Gannet	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 90

HRA Screening Matrix 91: Foula SPA

Name of European site:	**Foula SPA**											
EU Code:	UK9002061											
Distance to Project:	937.01 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Leach's storm petrel; Razorbill; Kittiwake; Guillemot; Arctic tern; Great skua; and Pufifn	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Additionally, the site specific maximum foraging range from this SPA for Fulmar is 120km (Woodward et al., 2019), therefore the site is unlikely to have connectivity with VE. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 91

HRA Screening Matrix 92: Papa Stour SPA

Name of European site:	Papa Stour SPA											
EU Code:	UK9002051											
Distance to Project:	956.56 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Arctic tern	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for this species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 92

HRA Screening Matrix 93: Fetlar SPA

Name of European site:	Fetlar SPA											
EU Code:	UK9002031											
Distance to Project:	967.72 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Arctic tern; and Great skua	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xb These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPAs, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 93

HRA Screening Matrix 94: Ronas Hill-North Roe and Tingon SPA

Name of European site:	**Ronas Hill-North Roe and Tingon SPA**											
EU Code:	UK9002041											
Distance to Project:	972.74 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Great skua	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa These SPAs are not within the MMF+1SD of the array areas and offshore ECC for these species. For these SPAs, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 94

HRA Screening Matrix 95: Hermaness, Saxa Vord and Valla Field SPA

Name of European site:	Hermaness, Saxa Vord and Valla Field SPA											
EU Code:	UK9002011											
Distance to Project:	989.01 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	
Gannet; Kittiwake; Guillemot; Puffin; and Great skua	Xb	Xb	Xb	Xb	Xb	Xb		Xb			Xb	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

Xb This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 95

HRA Screening Matrix 96: Ramna Stacks and Gruney SPA

Name of European site:	**Ramna Stacks and Gruney SPA**											
EU Code:	UK9002021											
Distance to Project:	986.32 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Leach's storm petrel	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa This SPA is not within the MMF+1SD of the array areas and offshore ECC for these species. For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 96

HRA Screening Matrix 97: Southern Waters of Gibraltar SPA

Name of European site:	Southern Waters of Gibralter SPA											
EU Code:	UKGIB0002											
Distance to Project:	1835.07 km to array area											
Likely Effects of Project												
Effect	Changes in prey availability and behaviour			Direct disturbance and displacement			Barrier effects			Collision risk		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Man shearwater	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa	

Evidence supporting conclusions:

Xa For this SPA, the significance of effects at a population level is considered to decrease with a) distance and b) the severity of the effect experienced locally. For these effect categories, the likelihood and severity of the effect experienced locally is considered to be low and small to negligible. It is determined that significant effects would not therefore manifest on these distant sites after the likelihood and severity of effects on the designated populations have been diluted over distance and could only result in negligible effects in the wider environmental context alone. Therefore, LSE can be discounted in relation to effects alone.

End of Matrix 97

HRA Screening Matrix 98: Vlakte van de Raan

Name of European site:	**Vlakte van de Raan**																				
EU Code:	BEMNZ0005 and NL2008003																				
Distance to Project:	79.28 km to array area																				
Likely Effects of Project																					
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Underwater noise			Changes to prey		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Twaite shad, River shad, and Sea Lamprey	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa	Xa	Xa	Xa	Xa	Xa	Xa

Evidence supporting conclusions:

Xa No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site.

End of Matrix 98

HRA Screening Matrix 99: Westerschelde & Saeftinghe

Name of European site:	**Westerschelde & Saeftinghe**																				
EU Code:	NL9803061																				
Distance to Project:	91.8 km to array area																				
Likely Effects of Project																					
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Underwater noise			Changes to prey		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Twaite shad; and Sea Lamprey	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa	Xa	Xa	Xa	Xa	Xa	Xa

Evidence supporting conclusions:

Xa No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site.

End of Matrix 99

HRA Screening Matrix 100: Voordelta

Name of European site:	**Voordelta**																				
EU Code:	NL4000017																				
Distance to Project:	78.5 km to array area																				
Likely Effects of Project																					
Effect	Physical habitat loss/ disturbance			Suspended sediment/ deposition			Accidental pollution			Invasive Non-Native Species (INNS)			EMF			Underwater noise			Changes to prey		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Allis shad; Twaite shad; River lamprey and Sea Lamprey	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa	Xa	Xa	Xa	Xa	Xa	Xa

Evidence supporting conclusions:

Xa No potential for LSE. These features have been screened out from assessment as a result of the distance between VE and the designated site.

End of Matrix 100

HRA Screening Matrix 101: Hamford Water SAC

Name of European site:	Hamford Water SAC														
EU Code:	UK0030377														
Distance to Project:	0.71 km to array area														
Likely Effects of Project															
Effect	Impacts on supporting populations, food plant and potential habitat outside the SAC			Water quality: pollution from site run-off affecting habitat quality			Decreases in water quality			Decrease in air quality			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Fisher's estuarine moth	√a		√a	√a		√a	√a		√a	√a		√a	√a		√a

Evidence supporting conclusions:

√a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

End of Matrix 101

HRA Screening Matrix 102: Hamford Water Ramsar

Name of European site:	Hamford Water Ramsar								
EU Code:	UK11028								
Distance to Project:	0.72 km to array area								
Likely Effects of Project									
Effect	Disturbance of birds outside the Ramsar			Water quality: pollution from site run-off affecting prey availability			Decreases in water quantity		
Stage of Development	C	O	D	C	O	D	C	O	D
Important wintering populations of: Black-tailed godwit; Dark-bellied brent goose; Redshank; and Ringed plover	✓a	✓a	✓a	✓a		✓a	✓a		

Evidence supporting conclusions:

✓a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination, except for little tern as this species breeds and forages in areas that are distant from the ECC and is addressed separately offshore in HRA Screening Matrix 28~~HRA Screening Matrix 28~~.

End of Matrix 102

HRA Screening Matrix 103: Stour and Orwell Estuaries SPA and Ramsar

Name of European site:	**Stour and Orwell Estuaries SPA and RAMSAR**																				
EU Code:	UK9009121																				
Distance to Project:	3.10 km to array area																				
Likely Effects of Project																					
Effect	Disturbance of birds outside the SPA			Water quality: pollution from site run-off affecting prey availability			Decreases in water quantity			Decrease in air quality			Loss of foraging and roosting habitat outside the Ramsar			Impacts on supoprting populations of plants and invertebrates outside the Ramsar			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D				C	O	D
Over winter: Black-tailed godwit; Dark-bellied brent goose; Dunlin; Grey plover Knot; Pintail; Redshank; Waterbird assemblage	✓a	✓a	✓a	✓a		✓a	✓a			✓a		✓a	✓a						✓a	✓a	✓a
On passage: Redshank	✓a	✓a	✓a	✓a		✓a	✓a			✓a		✓a	✓a						✓a	✓a	✓a
During the breeding season: Avocet	✓a	✓a	✓a	✓a		✓a	✓a			✓a		✓a	✓a						✓a	✓a	✓a
Wetland invertebrate assemblage																✓a	✓a	✓a	✓a	✓a	✓a
Wetland plant assemblage																✓a	✓a	✓a	✓a	✓a	✓a

Evidence supporting conclusions:

✓a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

End of Matrix 103

HRA Screening Matrix 104: Abberton Reservoir SPA

Name of European site:	Abberton Reservoir SPA														
EU Code:	UK9009141														
Distance to Project:	11.4 km to array area														
Likely Effects of Project															
Effect	Disturbance of birds outside the SPA			Water quality: pollution from site run-off affecting habitat quality			Decrease in air quality			Loss of foraging and roosting habitat outside the Ramsar			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Breeding: Cormorant	✓a	✓a	✓a	✓a		✓a	✓a		✓a	✓a			✓a	✓a	✓a
Goldeneye; Pochard; and Tufted duck															

Evidence supporting conclusions:

✓a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

End of Matrix 104

HRA Screening Matrix 105: Abberton Reservoir Ramsar

Name of European site:	Abberton Reservoir Ramsar														
EU Code:	UK9009141														
Distance to Project:	11.4 km to array area														
Likely Effects of Project															
Effect	Disturbance of birds outside the Ramsar			Water quality: pollution from site run-off affecting prey availability			Decrease in air quality			Loss of foraging and roosting habitat outside the Ramsar			In-combination		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Wintering: Gadwall; Shoveler; Wigeon; and Waterbird assemblage	✓a	✓a	✓a	✓a		✓a	✓a		✓a	✓a			✓a	✓a	✓a

Evidence supporting conclusions:

✓a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

End of Matrix 105

3.1 LESSER BLACK-BACKED GULL PROPOSED COMPENSATION SITE (PCS) AT ORFORD NESS

HRA Screening Matrix 106: Alde-Ore Estuary Ramsar and the PCS

Name of European site:	**Alde-Ore Estuary Ramsar**																										
EU Code:	UK0030076																										
Distance to Project:	0m to Proposed Compensation Site, 100% overlap																										
Likely Effects of Project																											
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of grazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination		
Stage of Development	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
Rare plants	✓a	✓a	✓a	✓a	✓a	✓a				✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Rare invertebrates	✓a	✓a	✓a	✓a	✓a	✓a				✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Avocet (breeding)	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Lesser black-backed gull (breeding)	Xa	✓a	✓a	Xa	✓a	✓a	Xc	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Little tern (breeding)	✓a	✓a	✓a	Xa	Xa	Xa	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		Xa			✓a			✓a		✓a	✓a	✓a
Marsh harrier (breeding)	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	Xe	Xe	Xe	✓a	✓a	✓a		✓a			Xe			✓a		✓a	✓a	✓a
Mediterranean Gull (Breeding)	Xa	Xa	Xa	Xa	Xa	Xa	Xd	Xd	Xd	Xd	Xd	Xd	✓a	✓a	✓a		Xa			Xa			Xa		✓a	✓a	✓a
Sandwich tern (breeding)	Xa	Xa	Xa	Xa	Xa	Xa	Xd	Xd	Xd	Xd	Xd	Xd	✓a	✓a	✓a		Xa			Xa			Xa		✓a	✓a	✓a
Avocet (non-breeding)	✓a	✓a	✓a	Xb	Xb	Xb	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Common greenshank	✓a	✓a	✓a	Xb	Xb	Xb	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a

Name of European site:	Alde-Ore Estuary Ramsar																								
(non-breeding)																									
Black tailed godwit (non-breeding)	✓a	✓a	✓a	Xb	Xb	Xb	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Pintail (non-breeding)	✓a	✓a	✓a	Xb	Xb	Xb	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Shelduck (non-breeding)	✓a	✓a	✓a	Xb	Xb	Xb	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Shoveler (non-breeding)	✓a	✓a	✓a	Xb	Xb	Xb	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Spotted redshank (non-breeding)	✓a	✓a	✓a	Xb	Xb	Xb	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Redshank (non-breeding)	✓a	✓a	✓a	Xb	Xb	Xb	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Teal (non-breeding)	✓a	✓a	✓a	Xb	Xb	Xb	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
White fronted goose (non-breeding)	Xf	Xf	Xf	Xb	Xb	Xb	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf		Xf			Xf			Xf		Xg	Xg	Xg
Wigeon (non-breeding)	Xf	Xf	Xf	Xb	Xb	Xb	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf	Xf		Xf			Xf			Xf		Xg	Xg	Xg

Evidence supporting conclusions:

✓a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

Xa This species does not breed in the vicinity of the Proposed Compensation Site and the habitat is not suitable or otherwise unlikely to be used for breeding.

Xb Birds would take flight before being injured or killed.

Xc At their closest point, the breeding colonies of Lesser Black-backed gull area c. 3.9km and 0.3km from the PCS respectively, and neither is alongside the access route from Orford. Although birds may be present occasionally, the PCS does not provide good foraging habitat for this species, hydrological links between the PCS and these areas are very weak and, given the distances, there is no scope for works undertaken at the PCS to disturb birds nesting at the two colonies.

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Xd The Sandwich Tern colony at Orford Ness was on Havergate Island but it was more or less abandoned in 1997, with nesting occurring only in some years with a maximum of 15 pairs in 2003. Given the distance to the location of the colony on Havergate Island (>4km), the works at the PCS could not hinder any efforts to restore the colony. The likely locations of any re-established breeding pairs of Mediterranean Gull are also too distant for works at the PCS to hinder the restoration of the colony.

Xe Species not sensitive to water quality changes.

Xf The habitat within the PCS includes ditches and small saline lagoons however these are shallow and support mainly annual vegetation which is not green in winter. Therefore, the ditches and lagoons are not suitable habitat for Wigeon and White-fronted Goose which require green vegetation for foraging in winter and prefer deep, open water for roosting. The works at the PCS would therefore not affect these species.

Xg No impact pathways have been identified.

End of Matrix 106

HRA Screening Matrix 107: Alde-Ore Estuary SPA and the PCS

Name of European site:	**Alde-Ore Estuary SPA**																										
EU Code:	UK9009112																										
Distance to Project:	0m to Proposed Compensation Site, 100% overlap																										
Likely Effects of Project																											
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of gazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination		
Stage of Development	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
Avocet (Breeding)	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Lesser black-backed gull (Breeding)	Xa	✓a	✓a	Xa	✓a	✓a	Xc	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Little tern (Breeding)	✓a	✓a	✓a	Xa	Xa	Xa	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		Xa			✓a			Xa		✓a	✓a	✓a
Sandwich tern (Breeding)	Xa	Xa	Xa	Xa	Xa	Xa	Xd	Xd	Xd	Xd	Xd	Xd	✓a	✓a	✓a		Xa			✓a			Xa		✓a	✓a	✓a
Marsh harrier (Breeding)	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	Xe	Xe	Xe	✓a	✓a	✓a		✓a			Xe			✓a		✓a	✓a	✓a
Avocet (non-breeding)	✓a	✓a	✓a	Xb	Xb	Xb	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Redshank (non-breeding)	✓a	✓a	✓a	Xb	Xb	Xb	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Ruff (non-breeding)	✓a	✓a	✓a	Xb	Xb	Xb	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a

Evidence supporting conclusions:

✓a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

Cont. on next page

Xa This species does not breed in the vicinity of the Proposed Compensation Site and the habitat is not suitable or otherwise unlikely to be used for breeding.

Xb Birds would take flight before being injured or killed.

Xc At their closest point, the breeding colonies of Lesser Black-backed gull are c. 3.9km and 0.3km from the PCS respectively, and neither is alongside the access route from Orford. Although birds may be present occasionally, the PCS does not provide good foraging habitat for this species, hydrological links between the PCS and these areas are very weak and, given the distances, there is no scope for works undertaken at the PCS to disturb birds nesting at the two colonies.

Xd The Sandwich Tern colony at Orford Ness was on Havergate Island but it was more or less abandoned in 1997, with nesting occurring only in some years with a maximum of 15 pairs in 2003. Given the distance to the location of the colony on Havergate Island (>4km), the works at the PCS could not hinder any efforts to restore the colony.

Xe Species not sensitive to water quality changes.

End of Matrix 107

HRA Screening Matrix 108: Orfordness – Shingle Street SAC and the PCS

Name of European site:	**Orfordness - Shingle Street SAC**																										
EU Code:	UK0014780																										
Distance to Project:	0m to Proposed Compensation Site, 100% overlap																										
Likely Effects of Project																											
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of gazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination		
Stage of Development	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
Coastal lagoons	✓a	✓a	✓a							✓a	✓a	✓a	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a
Annual vegetation of drift lines	Xa	Xa	Xa							Xb	Xb	Xb	✓a	✓a	✓a		Xa			Xa			Xa		✓a	✓a	✓a
Perennial vegetation of stony banks	✓a	✓a	✓a							Xc	Xc	Xc	✓a	✓a	✓a		✓a			✓a			✓a		✓a	✓a	✓a

Evidence supporting conclusions:

✓a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

Xa Annual vegetation of drift lines does not occur within or near the PCS or the access route.

Xb Annual vegetation of drift lines is primarily a terrestrial habitat which could not be affected by pollution generated by the small-scale works at the PCS.

Xc Perennial vegetation of stony banks is primarily a terrestrial habitat which could not be affected by pollution generated by the small-scale works at the PCS.

End of Matrix 108

HRA Screening Matrix 109: Outer Thames Estuary SPA and the PCS

Name of European site:	**Outer Thames Estuary SPA**																										
EU Code:	UK9020309																										
Distance to Project:	72.4m to Proposed Compensation Site																										
Likely Effects of Project																											
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of gazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination		
Stage of Development	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
Red throated diver (non-breeding)	Xa	Xa	Xa	Xb	Xb	Xb	Xb	Xb	Xb	Xd	Xd	Xd	Xa	Xa	Xa		Xa			Xd			Xa		Xe	Xe	Xe
Common tern (breeding)	Xa	Xa	Xa	Xc	Xc	Xc	Xc	Xc	Xc	Xd	Xd	Xd	Xa	Xa	Xa		Xa			Xd			Xa		Xe	Xe	Xe
Little tern (breeding)	Xa	Xa	Xa	Xc	Xc	Xc	Xc	Xc	Xc	Xd	Xd	Xd	Xa	Xa	Xa		Xa			Xd			Xa		Xe	Xe	Xe

Evidence supporting conclusions:

Xa Any effect would be terrestrial or freshwater aquatic and therefore would not affect these species, which do not nest within the PCS and hunt for fish in open water.

Xb The Red-throated Diver (during winter) is entirely marine and therefore could not suffer mortality or be disturbed by the works, which are entirely on land and screened from the sea by a large shingle bank.

Xc The named tern colonies on the SPA citation do not include any at Orford Ness and therefore the birds at the colonies could not suffer mortality or be disturbed by the works. Any terns foraging at sea could not be disturbed by the work because the works are entirely on land and screened from the sea by a large shingle bank.

Xd Surface water from the PCS will ultimately enter the SPA, however this is a very weak impact pathway. Due to the small scale of the works, effects on these bird species foraging at sea can be completely discounted.

Xe Due to the absence of any real impact pathways, in combination effects can be discounted.

End of Matrix 109

HRA Screening Matrix 110: Alde-Ore Butley Estuaries SAC and the PCS

Name of European site:	**Alde-Ore & Butley Estuaries SAC**																										
EU Code:	UK0030076																										
Distance to Project:	0m to Proposed Compensation Site, adjacent to access track																										
Likely Effects of Project																											
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of gazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination		
Stage of Development	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
Estuaries	Xa	Xa	Xa							✓a	✓a	✓a	✓a	✓a	✓a					✓a			Xc		✓a	✓a	✓a
Mudflats and sandflats not covered by seawater at low tide	Xa	Xa	Xa							✓a	✓a	✓a	✓a	✓a	✓a					✓a			Xc		✓a	✓a	✓a
Atlantic salt meadows	Xa	Xa	Xa							Xb	Xb	Xb	✓a	✓a	✓a					✓a			Xc		✓a	✓a	✓a

Evidence supporting conclusions:

✓a Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

Xa There will be no construction activity within this SAC or contact with construction machinery and therefore no risk of damage.

Xb Atlantic salt meadows are not an aquatic habitat and are therefore not vulnerable to pollution at the levels that could occur as a result of the works at the PCS.

Xc The fence line could not affect water flows in the Estuary (and therefore the SAC).

End of Matrix 110

HRA Screening Matrix 111: Southern North Sea SAC and the PCS

Name of European site:	**Southern North Sea SAC**																										
EU Code:	UK0030395																										
Distance to Project:	2809m to Proposed Compensation Site																										
Likely Effects of Project																											
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of gazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination		
Stage of Development	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
Harbour porpoise	X	X	X	X	X	X				X	X	X	X	X	X					X			X		X	X	X

Evidence supporting conclusions:

X There are no ecological connections between the SAC and the PCS, and, although the surface water from the PCS will ultimately enter the North Sea, this is a very weak impact pathway. Due to the small scale of the works, effects on Harbour Porpoise can be discounted.

End of Matrix 111

HRA Screening Matrix 112: Sandlings SPA and the PCS

Name of European site:	**Sandlings SPA**																							
EU Code:	UK9020286																							
Distance to Project:	2620m to Proposed Compensation Site																							
Likely Effects of Project																								
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of gazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
European nightjar (breeding)	X	X	X				X	X	X	X	X	X	X	X	X		X			X			X	
Woodlark (breeding)	X	X	X				X	X	X	X	X	X	X	X	X		X			X			X	

Evidence supporting conclusions:

X There are no ecological or hydrological connections between this SPA and the PCS; they are separated by c.2.6km. The qualifying interest bird species are heathland species which do not breed at Orford Ness.

End of Matrix 112

HRA Screening Matrix 113: Staverton Park & The Thicks Wantisden SAC and the PCS

Name of European site:	**Staverton Park & The Thicks Wantisden SAC**																										
EU Code:	UK0012741																										
Distance to Project:	6491m to Proposed Compensation Site																										
Likely Effects of Project																											
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of gazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination		
Stage of Development	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
Old acidophilous oak woods with *Quercus robur* on sandy plains	X	X	X							X	X	X	X	X	X		X			X			X		X	X	X

Evidence supporting conclusions:

X There are no ecological or hydrological connections between this SAC and the PCS; they are separated by c.6.5km. The qualifying interest habitat does not occur at Orford Ness.

End of Matrix 113

HRA Screening Matrix 114: Minsmere - Walberswick Ramsar and the PCS

Name of European site:	**Minsmere – Walberswick Ramsar**																										
EU Code:	UK11044																										
Distance to Project:	13,065m to Proposed Compensation Site																										
Likely Effects of Project																											
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of gazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination		
Stage of Development	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
Great Bittern (breeding)	(√a)	(√a)	(√a)	Xa	Xa	Xa	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)	(√a)	(√a)	(√a)
Gadwall (breeding)	(√a)	(√a)	(√a)	Xa	Xa	Xa	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)	(√a)	(√a)	(√a)
Eurasian teal (breeding)	(√a)	(√a)	(√a)	Xa	Xa	Xa	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)	(√a)	(√a)	(√a)
Northern shoveler (breeding)	(√a)	(√a)	(√a)	Xa	Xa	Xa	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)	(√a)	(√a)	(√a)
Marsh harrier (breeding)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	Xb	Xb	Xb	(√a)	(√a)	(√a)		(√a)			Xb			(√a)		(√a)	(√a)	(√a)	(√a)	(√a)	(√a)
Pied avocet (breeding)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)	(√a)	(√a)	(√a)
Bearded tit (breeding)	(√a)	(√a)	(√a)	Xa	Xa	Xa	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)	(√a)	(√a)	(√a)

Evidence supporting conclusions:

(√a) Effects at this Ramsar are indirect only, dependent on effects on the populations at Alde-Ore Estuary SPA and Ramsar, and only if the bird populations at the two locations are linked. Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

Xa This species does not breed in the vicinity of the Proposed Compensation Site and the habitat is not suitable or otherwise unlikely to be used for breeding.

Xb Species not sensitive to water quality changes.

End of Matrix 114

HRA Screening Matrix 115: Minsmere – Walberswick SPA and the PCS

Name of European site:	**Minsmere – Walberswick SPA**																										
EU Code:	UK9009101																										
Distance to Project:	13,065m to Proposed Compensation Site																										
Likely Effects of Project																											
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of gazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination		
Stage of Development	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
Eurasian teal (breeding)	(√a)	(√a)	(√a)	Xb	Xb	Xb	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)
Great Bittern (breeding)	(√a)	(√a)	(√a)	Xb	Xb	Xb	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)
European nightjar (breeding)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa			Xa			Xa		Xa	Xa	Xa
Northern shoveler (breeding)	(√a)	(√a)	(√a)	Xb	Xb	Xb	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)
Gadwall (breeding)	(√a)	(√a)	(√a)	Xb	Xb	Xb	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)
Pied avocet (breeding)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)
Little tern (breeding)	(√a)	(√a)	(√a)	Xb	Xb	Xb	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)	(√a)		(√a)			(√a)			(√a)		(√a)	(√a)	(√a)

Name of European site:	Minsmere – Walberswick SPA																								
Eurasian marsh harrier (non-breeding)	(✓a)	(✓a)	(✓a)	Xc	Xc	Xc	(✓a)	(✓a)	(✓a)	Xe	Xe	Xe	(✓a)	(✓a)	(✓a)		(✓a)			Xe			(✓a)		(✓a)	(✓a)	(✓a)
Northern shoveler (non-breeding)	(✓a)	(✓a)	(✓a)	Xc	Xc	Xc	(✓a)	(✓a)	(✓a)	(✓a)	(✓a)	(✓a)	(✓a)	(✓a)	(✓a)		(✓a)			(✓a)			(✓a)		(✓a)	(✓a)	(✓a)
Gadwall (non-breeding)	(✓a)	(✓a)	(✓a)	Xc	Xc	Xc	(✓a)	(✓a)	(✓a)	(✓a)	(✓a)	(✓a)	(✓a)	(✓a)	(✓a)		(✓a)			(✓a)			(✓a)		(✓a)	(✓a)	(✓a)
Great white-fronted goose (non-breeding)	Xd	Xd	Xd	Xc	Xc	Xc	Xd	Xd	Xd	Xd	Xd	Xd	Xd	Xd	Xd		Xd			Xd			Xd		Xd	Xd	Xd
Hen harrier (non-breeding)	(✓a)	(✓a)	(✓a)	Xc	Xc	Xc	(✓a)	(✓a)	(✓a)	Xe	Xe	Xe	(✓a)	(✓a)	(✓a)		(✓a)			Xe			(✓a)		(✓a)	(✓a)	(✓a)

Evidence supporting conclusions:

(✓a) Effects at this SPA are indirect only, dependent on effects on the populations at Alde-Ore Estuary SPA and Ramsar, and only if the bird populations at the two locations are linked. Effects cannot be screened out at this stage, alone or in-combination. Therefore, there is a potential for LSE alone and in-combination.

Xa These is no suitable habitat for this species at the Alde-Ore Estuary SPA and Ramsar and therefore no possibility of a linked population.

Xb This species does not breed in the vicinity of the Proposed Compensation Site and the habitat is not suitable or otherwise unlikely to be used for breeding.

Xc Birds would take flight before being injured or killed.

Xd The habitat within the PCS includes ditches and small saline lagoons however these are shallow and support mainly annual vegetation which is not green in winter. Therefore, the ditches and lagoons are not suitable habitat for White-fronted Goose which require green vegetation for foraging in winter and prefer deep, open water for roosting. The works at the PCS would therefore not affect this species.

Xe Species not sensitive to water quality changes.

End of Matrix 115

HRA Screening Matrix 116: Minsmere to Walberswick Heaths & Marshes SAC and the PCS

Name of European site:	**Minsmere to Walberswick Heaths & Marshes SAC**																										
EU Code:	UK0012809																										
Distance to Project:	13,065m to Proposed Compensation Site																										
Likely Effects of Project																											
Effect	Damage to qualifying interest habitats or the habitats of the qualifying interest species			Direct mortality of qualifying interest animals and plants			Disturbance of qualifying interest birds due to the presence of workers			Release of suspended solids and other pollution into waterways			Spread of non-native invasive species and pathogens			Removal of gazing animals affecting vegetation composition			Increases in nutrients from bird faeces affecting vegetation composition and water quality			Changes in water flows caused by fence lines across ditches			In-combination		
Stage of Development	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
Annual vegetation of drift lines	Xa	Xa	Xa							Xb	Xb	Xb	Xa	Xa	Xa		Xa			Xb			Xb		Xc	Xc	Xc
Perennial vegetation of stony banks	Xa	Xa	Xa							Xb	Xb	Xb	Xa	Xa	Xa		Xa			Xb			Xb		Xc	Xc	Xc
European dry heaths	Xa	Xa	Xa							Xb	Xb	Xb	Xa	Xa	Xa		Xa			Xb			Xb		Xc	Xc	Xc

Evidence supporting conclusions:

Xa The works are separated from the SAC by c.13km so there is no possibility of an effect.

Xb The only hydrological connection between the PCS and the SAC is the sea; given the small scale of the works, effects are not possible.

Xc Due to the absence of any real impact pathways, in combination effects can be discounted.

End of Matrix 116

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FIVE ESTUARIES
OFFSHORE WIND FARM

PHONE 0333 880 5306
EMAIL fiveestuaries@rwe.com
WEBSITE www.fiveestuaries.co.uk
ADDRESS Five Estuaries Offshore Wind Farm Ltd
Windmill Hill Business Park
Whitehill Way, Swindon, SN5 6PB
COMPANY NO Registered in England and Wales
company number 12292474