



AQUIND Limited

AQUIND INTERCONNECTOR

HABITATS REGULATIONS ASSESSMENT REPORT - VOLUME 3 - APPENDIX 1: PINS SCREENING AND INTEGRITY MATRICES

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The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations
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Appendix 1: European Marine Sites Screening and Integrity Matrices

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Screening Matrices - Potential Effects

Potential effects upon the European site(s)* which are considered within the submitted Habitat Regulations Assessment ('HRA') Report (APP-491, Rev 002) are provided in the table below. Effects have been grouped where appropriate for ease of presentation. Ramsar screening and integrity matrices are presented in Appendix 5 (document reference 7.7.10).

Effects considered within the screening matrices for marine ornithology features

#The information in this column relates to all phases of the project (i.e. construction, operation and decommissioning) unless otherwise stated.

Designation	Effects described in submission information #	Presented in screening matrices as
UK sites identified: Solent and Dorset Coast SPA Chichester and Langstone Harbours SPA Portsmouth Harbour SPA Solent and Southampton Water SPA Pagham Harbour SPA	Alone: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects • Collision • INIS • Accidental spills • Litter 	Alone: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects • Collision • INIS • Accidental spills • Litter
	In combination: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects • Collision • INIS • Accidental spills • Litter 	In combination: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects • Collision • INIS • Accidental spills • Litter
Transboundary sites identified: Littoral Seino-Marin SPA	Alone: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects • Collision • INIS • Accidental spills • Litter 	Alone: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects • Collision • INIS • Accidental spills • Litter
	In combination: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects • Collision • INIS • Accidental spills • Litter 	In combination: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects • Collision • INIS • Accidental spills • Litter
Pre-screened out sites: Poole Harbour SPA Dungeness, Romney Marsh and Rye Bay SPA	Alone: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects • Collision 	Alone: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects • Collision

* As defined in Advice Note 10.

Designation	Effects described in submission information #	Presented in screening matrices as
Estuaire et Marais de la Basse Seine SPA	<ul style="list-style-type: none"> • INIS • Accidental spills • Litter 	<ul style="list-style-type: none"> • INIS • Accidental spills • Litter
	In combination: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects • Collision • INIS • Accidental spills • Litter 	In combination: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects • Collision • INIS • Accidental spills • Litter

Effects considered within the screening matrices for fish features

#The information in this column relates to all phases of the project (i.e. construction, operation and decommissioning) unless otherwise stated.

Designation	Effects described in submission information #	Presented in screening matrices as
UK sites		
River Itchen SAC River Avon SAC River Axe SAC Plymouth Sound and Estuaries SAC	Alone:	Alone:
	• Increased SSC	• Increased SSC
	• Physical Injury	• Physical Injury
	• Invasive species	• Invasive species
	• Pollution events	• Pollution events
	• Noise and vibration	• Noise and vibration
	• Visual disturbance	• Visual disturbance
	• EMF (Operation)	• EMF
	• Temperature changes (Operation)	• Temperature changes
	In combination:	In combination:
• Increased SSC	• Increased SSC	
• Noise and Vibration	• Noise and Vibration	
Transboundary (French) sites		
Littoral Cauchois SAC	Alone:	Alone:
	• Increased SSC	• Increased SSC
	• Physical Injury	• Physical Injury
	• Invasive species	• Invasive species
	• Pollution events	• Pollution events
	• Noise and vibration	• Noise and vibration
	• Visual disturbance	• Visual disturbance
	• EMF (Operation)	• EMF
• Temperature changes (Operation)	• Temperature changes	

Designation	Effects described in submission information #	Presented in screening matrices as
	In combination:	In combination:
	<ul style="list-style-type: none"> • Increased SSC • Noise and Vibration 	<ul style="list-style-type: none"> • Increased SSC • Noise and Vibration
Estuaires et Littoral Picards (Baies de Somme et d'Authie) SAC	Alone:	Alone:
	<ul style="list-style-type: none"> • Increased SSC • Physical Injury • Invasive species • Pollution events • Noise and vibration • Visual disturbance • EMF (Operation) • Temperature changes (Operation) 	<ul style="list-style-type: none"> • Increased SSC • Physical Injury • Invasive species • Pollution events • Noise and vibration • Visual disturbance • EMF • Temperature changes
	In combination:	In combination:
	<ul style="list-style-type: none"> • Increased SSC • Noise and Vibration 	<ul style="list-style-type: none"> • Increased SSC • Noise and Vibration
Baie de Canche et Couloir des Trois Estuaires SAC	Alone:	Alone:
	<ul style="list-style-type: none"> • Increased SSC • Physical Injury • Invasive species • Pollution events • Noise and vibration • Visual disturbance • EMF (Operation) • Temperature changes (Operation) 	<ul style="list-style-type: none"> • Increased SSC • Physical Injury • Invasive species • Pollution events • Noise and vibration • Visual disturbance • EMF • Temperature changes
	In combination:	In combination:
	<ul style="list-style-type: none"> • Increased SSC • Noise and Vibration 	<ul style="list-style-type: none"> • Increased SSC • Noise and Vibration
Baie de Seine Orientale SAC	Alone:	Alone:
	<ul style="list-style-type: none"> • Increased SSC • Physical Injury • Invasive species • Pollution events • Noise and vibration • Visual disturbance • EMF (Operation) • Temperature changes (Operation) 	<ul style="list-style-type: none"> • Increased SSC • Physical Injury • Invasive species • Pollution events • Noise and vibration • Visual disturbance • EMF • Temperature changes
	In combination:	In combination:
	<ul style="list-style-type: none"> • Increased SSC • Noise and Vibration 	<ul style="list-style-type: none"> • Increased SSC • Noise and Vibration
Estuaire de la Seine SAC	<ul style="list-style-type: none"> • Alone: • Increased SSC 	<ul style="list-style-type: none"> • Alone: • Increased SSC

Designation	Effects described in submission information #	Presented in screening matrices as
	<ul style="list-style-type: none"> Physical Injury 	<ul style="list-style-type: none"> Physical Injury
	<ul style="list-style-type: none"> Invasive species 	<ul style="list-style-type: none"> Invasive species
	<ul style="list-style-type: none"> Pollution events 	<ul style="list-style-type: none"> Pollution events
	<ul style="list-style-type: none"> Noise and vibration 	<ul style="list-style-type: none"> Noise and vibration
	<ul style="list-style-type: none"> Visual disturbance 	<ul style="list-style-type: none"> Visual disturbance
	<ul style="list-style-type: none"> EMF (Operation) 	<ul style="list-style-type: none"> EMF
	<ul style="list-style-type: none"> Temperature changes (Operation) 	<ul style="list-style-type: none"> Temperature changes
	In combination:	In combination:
	<ul style="list-style-type: none"> Increased SSC 	<ul style="list-style-type: none"> Increased SSC
	<ul style="list-style-type: none"> Noise and Vibration 	<ul style="list-style-type: none"> Noise and Vibration

Effects considered within the screening matrices for marine mammal features

#The information in this column relates to all phases of the project (i.e. construction, operation and decommissioning) unless otherwise stated. All of the effects listed were assessed for both the Proposed Development alone and for the Proposed Development in combination with other plans/projects.

Designation	Effects described in submission information #	Presented in screening matrices as
Transboundary sites		
Récifs Gris-Nez Blanc-Nez SAC	<ul style="list-style-type: none"> Auditory injury Disturbance Collision Indirect effects Pollution 	<ul style="list-style-type: none"> Auditory injury Disturbance Collision Indirect effects Pollution
Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC	<ul style="list-style-type: none"> Auditory injury Disturbance Collision Indirect effects Pollution 	<ul style="list-style-type: none"> Auditory injury Disturbance Collision Indirect effects Pollution
Baie de Canche et couloir des trois estuaires SAC	<ul style="list-style-type: none"> Auditory injury Disturbance Collision Indirect effects Pollution 	<ul style="list-style-type: none"> Auditory injury Disturbance Collision Indirect effects Pollution
Estuaires et littoral picards (baies de Somme et d'Authie) SAC	<ul style="list-style-type: none"> Auditory injury Disturbance Collision Indirect effects Pollution 	<ul style="list-style-type: none"> Auditory injury Disturbance Collision Indirect effects Pollution
Littoral Cauchois SAC	<ul style="list-style-type: none"> Auditory injury Disturbance 	<ul style="list-style-type: none"> Auditory injury Disturbance

Designation	Effects described in submission information [#]	Presented in screening matrices as
	• Collision	• Collision
	• Indirect effects	• Indirect effects
	• Pollution	• Pollution
Baie de Seine Orientale SAC	• Auditory injury	• Auditory injury
	• Disturbance	• Disturbance
	• Collision	• Collision
	• Indirect effects	• Indirect effects
	• Pollution	• Pollution
Estuaire de la Seine SAC	• Auditory injury	• Auditory injury
	• Disturbance	• Disturbance
	• Collision	• Collision
	• Indirect effects	• Indirect effects
	• Pollution	• Pollution
Pre-screened out sites		
Southern North Sea SAC	• Auditory injury	• Auditory injury
	• Disturbance	• Disturbance
	• Collision	• Collision
	• Indirect effects	• Indirect effects
	• Pollution	• Pollution
The Wash and North Norfolk Coast SAC	• Auditory injury	• Auditory injury
	• Disturbance	• Disturbance
	• Collision	• Collision
	• Indirect effects	• Indirect effects
	• Pollution	• Pollution
Pembrokeshire Marine SAC	• Auditory injury	• Auditory injury
	• Disturbance	• Disturbance
	• Collision	• Collision
	• Indirect effects	• Indirect effects
	• Pollution	• Pollution
Cardigan Bay SAC	• Auditory injury	• Auditory injury
	• Disturbance	• Disturbance
	• Collision	• Collision
	• Indirect effects	• Indirect effects
	• Pollution	• Pollution

Effects considered within the screening matrices for Annex I habitat features

#The information in this column relates to all phases of the project (i.e. construction, operation and decommissioning) unless otherwise stated.

Designation	Effects described in submission information[#]	Presented in screening matrices as
Solent Maritime SAC	• Habitat disturbance	• Habitat disturbance/loss
	• Habitat loss	
	• Deposition of sediment (smothering)	• Increased SSC/smothering
	• Increased SSC	
	• Resuspension of contaminated sediments	• Contaminated sediments
	• Hydrodynamic changes	
	• Invasive species	• Hydrodynamic changes
	• Pollution events	
	• Increased light pollution	• Invasive species
	• Noise and vibration	
	• Temperature changes	• Pollution (incl. light/noise)
• EMF		
South Wight Maritime SAC	• Habitat disturbance	• Habitat disturbance/loss
	• Habitat loss	
	• Deposition of sediment (smothering)	• Increased SSC/smothering
	• Increased SSC	
	• Resuspension of contaminated sediments	• Contaminated sediments
	• Hydrodynamic changes	
	• Invasive species	• Hydrodynamic changes
	• Pollution events	
	• Increased light pollution	• Invasive species
	• Noise and vibration	
	• Temperature changes	• Pollution (incl. light/noise)
• EMF		
Pre-screened out sites		
Solent and Isle of Wight Lagoons SAC	• Habitat disturbance	• Habitat disturbance/loss
	• Habitat loss	
	• Deposition of sediment (smothering)	• Increased SSC/smothering
	• Increased SSC	
	• Resuspension of contaminated sediments	• Contaminated sediments
	• Hydrodynamic changes	
	• Invasive species	• Hydrodynamic changes
	• Pollution events	
	• Increased light pollution	• Invasive species
	• Noise and vibration	
	• Temperature changes	• Pollution (incl. light/noise)
• EMF		

Designation	Effects described in submission information[#]	Presented in screening matrices as
Wight-Barfleur Reef SAC	• Habitat disturbance	• Habitat disturbance/loss
	• Habitat loss	
	• Deposition of sediment (smothering)	• Increased SSC/smothering
	• Increased SSC	
	• Resuspension of contaminated sediments	• Contaminated sediments
	• Hydrodynamic changes	• Hydrodynamic changes
	• Invasive species	• Invasive species
	• Pollution events	• Pollution (incl. light/noise)
	• Increased light pollution	
	• Noise and vibration	
	• Temperature changes	• EMF/temperature
Bassurelle Sandbank SAC	• Habitat disturbance	• Habitat disturbance/loss
	• Habitat loss	
	• Deposition of sediment (smothering)	• Increased SSC/smothering
	• Increased SSC	
	• Resuspension of contaminated sediments	• Contaminated sediments
	• Hydrodynamic changes	• Hydrodynamic changes
	• Invasive species	• Invasive species
	• Pollution events	• Pollution (incl. light/noise)
	• Increased light pollution	
	• Noise and vibration	
	• Temperature changes	• EMF/temperature
Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC	• Habitat disturbance	• Habitat disturbance/loss
	• Habitat loss	
	• Deposition of sediment (smothering)	• Increased SSC/smothering
	• Increased SSC	
	• Resuspension of contaminated sediments	• Contaminated sediments
	• Hydrodynamic changes	• Hydrodynamic changes
	• Invasive species	• Invasive species
	• Pollution events	• Pollution (incl. light/noise)
	• Increased light pollution	
	• Noise and vibration	
	• Temperature changes	• EMF/temperature
Studland to Portland SAC	• Habitat disturbance	• Habitat disturbance/loss
	• Habitat loss	
	• Deposition of sediment (smothering)	• Increased SSC/smothering
	• Increased SSC	

Designation	Effects described in submission information [#]	Presented in screening matrices as
	<ul style="list-style-type: none"> • Resuspension of contaminated sediments 	<ul style="list-style-type: none"> • Contaminated sediments
	<ul style="list-style-type: none"> • Hydrodynamic changes 	<ul style="list-style-type: none"> • Hydrodynamic changes
	<ul style="list-style-type: none"> • Invasive species 	<ul style="list-style-type: none"> • Invasive species
	<ul style="list-style-type: none"> • Pollution events 	<ul style="list-style-type: none"> • Pollution (incl. light/noise)
	<ul style="list-style-type: none"> • Increased light pollution 	
	<ul style="list-style-type: none"> • Noise and vibration 	
	<ul style="list-style-type: none"> • Temperature changes 	<ul style="list-style-type: none"> • EMF/temperature
	<ul style="list-style-type: none"> • EMF 	
Littoral Cauchois SAC	<ul style="list-style-type: none"> • Habitat disturbance 	<ul style="list-style-type: none"> • Habitat disturbance/loss
	<ul style="list-style-type: none"> • Habitat loss 	<ul style="list-style-type: none"> • Increased SSC/smothering
	<ul style="list-style-type: none"> • Deposition of sediment (smothering) 	
	<ul style="list-style-type: none"> • Increased SSC 	
	<ul style="list-style-type: none"> • Resuspension of contaminated sediments 	<ul style="list-style-type: none"> • Contaminated sediments
	<ul style="list-style-type: none"> • Hydrodynamic changes 	<ul style="list-style-type: none"> • Hydrodynamic changes
	<ul style="list-style-type: none"> • Invasive species 	<ul style="list-style-type: none"> • Invasive species
	<ul style="list-style-type: none"> • Pollution events 	<ul style="list-style-type: none"> • Pollution (incl. light/noise)
	<ul style="list-style-type: none"> • Increased light pollution 	
	<ul style="list-style-type: none"> • Noise and vibration 	<ul style="list-style-type: none"> • EMF/temperature
	<ul style="list-style-type: none"> • Temperature changes 	
	<ul style="list-style-type: none"> • EMF 	

Effects considered within the screening matrices for onshore ecology features

#The information in this column relates to all phases of the project (i.e. construction, operation and decommissioning) unless otherwise stated.

Designation	Effects described in submission information #	Presented in screening matrices as
UK sites identified: Chichester and Langstone Harbours SPA Portsmouth Harbour SPA	Alone: <ul style="list-style-type: none"> • Disturbance & displacement • Visual disturbance • Light pollution • Indirect effects • INIS • Accidental spills • Litter 	<ul style="list-style-type: none"> • Alone: • Disturbance & displacement • Visual disturbance • Light pollution • Indirect effects • INIS • Accidental spills • Litter
	In combination: <ul style="list-style-type: none"> • Disturbance & displacement • Visual disturbance • Light pollution • Indirect effects • INIS • Accidental spills • Litter 	In combination: <ul style="list-style-type: none"> • Disturbance & displacement • Visual disturbance • Light pollution • Indirect effects • INIS • Accidental spills • Litter
Pre-screened out sites: Solent and Dorset Coast SPA Solent and Southampton Water SPA Butser Hill SAC Solent Maritime SAC	Alone: <ul style="list-style-type: none"> • Disturbance & displacement • Visual disturbance • Light pollution • Indirect effects • INIS • Accidental spills • Litter 	Alone: <ul style="list-style-type: none"> • Disturbance & displacement • Visual disturbance • Light pollution • Indirect effects • INIS • Accidental spills • Litter
	In combination: <ul style="list-style-type: none"> • Disturbance & displacement • Visual disturbance • Light pollution • Indirect effects • INIS • Accidental spills • Litter 	In combination: <ul style="list-style-type: none"> • Disturbance & displacement • Visual disturbance • Light pollution • Indirect effects • INIS • Accidental spills • Litter

STAGE 1: SCREENING MATRICES

The European sites (within the UK marine area) included within the screening assessments are:

- Solent and Dorset Coast SPA
- Chichester and Langstone Harbours SPA
- Portsmouth Harbour SPA
- Solent and Southampton Water SPA
- Pagham Harbour SPA
- River Itchen SAC
- River Avon SAC
- River Axe SAC
- Plymouth Sound and Estuaries SAC
- Solent Maritime SAC
- South Wight Maritime SAC

Transboundary European sites included within the screening assessments for fish:

- Littoral Cauchois SAC
- Estuaires et littoral picards (baies de Somme et d'Authie) SAC
- Baie de Canche et couloir des trois estuaires SAC
- Baie de Seine Orientale SAC
- Estuaire de la Seine SAC

Transboundary European sites included within the screening assessments for marine ornithology:

- Littoral Seino-Marin SPA

Transboundary European sites included within the screening assessments for marine mammals:

- Récifs Gris-Nez Blanc-Nez SAC
- Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC
- Baie de Canche et couloir des trois estuaires SAC
- Estuaires et littoral picards (baies de Somme et d'Authie) SAC
- Littoral Cauchois SAC
- Baie de Seine Orientale SAC
- Estuaire de la Seine SAC

Pre-screened out sites for marine ornithology features:

- Poole Harbour SPA
- Dungeness, Romney Marsh and Rye Bay SPA
- Estuaire et Marais de la Basse Seine SPA

Pre-screened out sites for marine mammal features:

- Southern North Sea SAC
- The Wash and North Norfolk Coast SAC

- Pembrokeshire Marine SAC
- Cardigan Bay SAC

Pre-screened out sites for Annex I habitat features:

- Solent and Isle of Wight Lagoons SAC
- Wight-Barfleur Reef SAC
- Bassurelle Sandbank SAC
- Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC
- Studland to Portland SAC
- Littoral Cauchois SAC

Evidence for, or against, likely significant effects on the European site(s) and its qualifying feature(s) is detailed within the footnotes to the screening matrices below.

Matrix Key:

✓ = Likely significant effect **cannot** be excluded

✗ = Likely significant effect **can** be excluded

C = construction

O = operation (and repair/maintenance)

D = decommissioning

B = breeding

W = wintering/non-breeding

P = passage

Where effects are not applicable to a particular feature they are **greyed out**.

HRA Screening Matrix 1A: Solent and Dorset Coast SPA (Marine Ornithology)

Name of European Site: Solent and Dorset Coast SPA (Marine Ornithology)																		
Distance to Proposed Development: 0.0 km																		
European site feature	Likely Effects of the Proposed Development (<u>Alone</u>)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Sandwich tern (B)	x	b	x	✓	c	✓	x	d	x	x	e	x	✓	f	✓	✓	g	✓
Little tern (B)	✓	a	✓	✓	c	✓	x	d	x	x	e	x	✓	f	✓	✓	g	✓
Common tern (B)	x	b	x	✓	c	✓	x	d	x	x	e	x	✓	f	✓	✓	g	✓
Supporting habitat (water column)	x	h	x	✓	i	✓				x	j	x	✓	k	✓	✓	g	✓

Evidence supporting conclusions:

- a. Due to a restricted foraging range, the presence of vessels and associated activities during all development phases may displace this moderately sensitive feature from favoured foraging habitat through both visual disturbance and unpredictable noise events. Therefore, LSE applies to disturbance and displacement (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Table 7.9 and 9.1).
- b. Given that these features are not considered to be sensitive to disturbance from vessel traffic and associated activities, the potential for an effect from displacement is considered to be negligible across all development phases. Therefore, no LSE applies to disturbance & displacement for these features (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- c. Increases in suspended sediment concentrations as a result of HDD works, cable burial activities and cable maintenance may affect prey availability within the foraging range of these features. Therefore, LSE applies to indirect effects (HRA Report (APP-491, Rev 002) Section 7.2.4 and 9.1.5, Table 7.9 and 9.1).
- d. Structures or devices which have the potential to pose an above water collision risk to these features will not be introduced during any development phase. Surface feeding species are not considered to be vulnerable to below water collisions. The potential for an effect is therefore considered negligible and therefore no LSE applies to collision (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- e. There is no pathway for marine works to introduce invasive non-indigenous predators (e.g. mink) to breeding colonies for these features and therefore no LSE applies to INIS (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- f. Unplanned oil or chemical spillages from vessels may occur during all development phases. Spills have the potential to directly affect these features when utilising the sea surface e.g. through direct oiling resulting in mortality. Therefore, LSE applies to accidental spills (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).
- g. Unplanned disposal of industrial or user plastic into the water column during all development phases has the potential to directly affect these features and their prey species present in the water column e.g. through ingestion or entanglement resulting in mortality. Therefore, LSE applies to litter (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).
- h. Disturbance and displacement of prey species present within the water column during all phases of development is considered to be negligible since it is likely that fish species present in the Solent are accustomed to vessel traffic and the presence of vessels towing equipment (e.g. commercial fishing vessels) and will simply navigate round or under any construction or maintenance vessels. Therefore, no LSE applies (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- i. Increases in suspended sediment concentrations ('SSC') as a result of HDD works, cable burial activities and cable maintenance may increase turbidity of this supporting habitat, altering prey availability through changes in primary production by phytoplankton, as well as making it harder for visual foraging features to see prey from the sea surface. Therefore, LSE applies to indirect effects (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).
- j. Invasive species may be introduced into the water column via biofouling or ballast water from vessels. However, these will not be harmful to prey species present in the water column. The introduction of non-burial protection (0.7 km²) is not predicted to affect the abundance and distribution of INIS which are already abundant and widely distributed in the English Channel. Therefore, no LSE applies to INIS (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- k. Unplanned oil or chemical spillages from vessels may occur during all development phases. Oil can cause sublethal impacts on juvenile fish growth and survival, thus potentially affecting prey availability. Therefore, LSE applies to accidental spills (HRA Report (APP-491, Rev 002) Section 7.2.4 and 9.1.5, Tables 7.9 and 9.1).

HRA Screening Matrix 1B: Solent and Dorset Coast SPA (Marine Ornithology – In Combination)

Name of European Site: Solent and Dorset Coast SPA (Marine Ornithology)																		
Distance to Proposed Development: 0 km																		
European site feature	Likely Effects of the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Sandwich tern (B)	x _b	x _b	x _b	√ _a	√ _a	√ _a	x _c	x _c	x _c	x _d	x _d	x _d	√ _a	√ _a	√ _a	√ _a	√ _a	√ _a
Little tern (B)	√ _a	√ _a	√ _a	√ _a	√ _a	√ _a	x _c	x _c	x _c	x _d	x _d	x _d	√ _a	√ _a	√ _a	√ _a	√ _a	√ _a
Common tern (B)	x _b	x _b	x _b	√ _a	√ _a	√ _a	x _c	x _c	x _c	x _d	x _d	x _d	√ _a	√ _a	√ _a	√ _a	√ _a	√ _a
Supporting habitat (water column)	x _e	x _e	x _e	√ _a	√ _a	√ _a				x _f	x _f	x _f	√ _a	√ _a	√ _a	√ _a	√ _a	√ _a

Evidence supporting conclusions :

- a. LSE applies to the Proposed Development alone (HRA Report (APP-491, Rev 002) Sections 8.2.4 and 9.1.5, Table 9.1). Therefore, potential in combination adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (See HRA Integrity Matrix 1A and 1B).
- b. Given that these features are not considered to be sensitive to disturbance from vessel traffic and associated activities, the potential for an in combination effect from displacement is considered to be negligible across all development phases. Therefore, no in combination LSE applies to disturbance & displacement for these features (HRA Report (APP-491, Rev 002) Section 8.2.4).
- c. Structures or devices which have the potential to pose an above water collision risk to these features will not be introduced during any development phase. Surface feeding species are not considered to be vulnerable to below water collisions. The potential for an effect is therefore considered negligible and therefore no in combination LSE applies to collision (HRA Report (APP-491, Rev 002) Section 8.2.4).
- d. There is no pathway for marine works to introduce invasive non-indigenous predators (e.g. mink) to breeding colonies for these features and therefore no in combination LSE applies to INIS (HRA Report (APP-491, Rev 002) Section 8.2.4).
- e. Disturbance and displacement of prey species present within the water column during all phases of development is considered to be negligible since it is likely that fish species present in the Solent are accustomed to vessel traffic and the presence of vessels towing equipment (e.g. commercial fishing vessels) and will simply navigate round or under any construction or maintenance vessels. Therefore, no in combination LSE applies (HRA Report (APP-491, Rev 002) Section 8.2.4).
- f. Invasive species may be introduced into the water column via biofouling or ballast water from vessels. However, these will not be harmful to prey species present in the water column. The introduction of non-burial protection (0.7 km²) is not predicted to affect the abundance and distribution of INIS which are already abundant and widely distributed in the English Channel. Therefore, no in combination LSE applies (HRA Report (APP-491, Rev 002) Section 8.2.4).

HRA Screening Matrix 2A: Chichester and Langstone Harbours SPA (Marine Ornithology)

Name of European Site: Chichester and Langstone Harbours SPA (Marine Ornithology)																		
Distance to Proposed Development: 0.1 km																		
European site feature	Likely Effects of the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)																		
Shelduck (W)																		
Shoveler (W)																		
Wigeon (W)																		
Pintail (W)																		
Teal (W)																		
Red-breasted merganser (W)	√a	√a	√a	√c	√c	√c	xe	xe	xe				√h	√h	√h	√i	√i	√i
Grey plover (W)																		
Ringed plover (W)																		
Curlew (W)																		
Bar-tailed godwit (W)																		
Turnstone (W)																		
Sanderling (W)																		
Dunlin (W)																		
Redshank (W)																		
Sandwich tern (B)	xb	xb	xb	√c	√c	√c	xd	xd	xd	xf	xf	xf	√g	√g	√g	√h	√h	√h
Little tern (B)	√a	√a	√a	√c	√c	√c	xd	xd	xd	xf	xf	xf	√g	√g	√g	√h	√h	√h
Common tern (B)	xb	xb	xb	√c	√c	√c	xd	xd	xd	xf	xf	xf	√g	√g	√g	√h	√h	√h
Supporting habitat (water column)	xi	xi	xi	√j	√j	√j				xk	xk	xk	√l	√l	√l	√h	√h	√h
Supporting Habitat Coastal Lagoons																		
Supporting Habitat Coastal reedbeds																		
Supporting Habitat Freshwater and coastal grazing marsh																		
Supporting Habitat Salicornia and other annuals colonising mud and sand																		
Supporting Habitat Atlantic salt meadows																		
Supporting Habitat Spartina swards																		
Supporting Habitat Intertidal seagrass beds																		
Supporting Habitat Intertidal rock																		
Supporting Habitat Intertidal coarse sediment																		
Supporting Habitat Intertidal mixed sediment																		
Supporting Habitat Intertidal mud																		
Supporting Habitat Intertidal sand and muddy sand																		
Supporting Habitat Subtidal coarse sediment																		

Evidence supporting conclusions :

- a. The presence of vessels and associated activities during all development phases may displace these moderately sensitive features from favoured foraging and/or roosting habitat through both visual disturbance and unpredictable noise events. Therefore, LSE applies to disturbance and displacement (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).
- b. Given that these features are not considered to be sensitive to disturbance from vessel traffic and associated activities, the potential for an effect from displacement is considered to be negligible across all development phases. Therefore, no LSE applies to disturbance & displacement for these features (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- c. Increases in SSC as a result of HDD works, cable burial activities and cable maintenance may affect prey availability within these foraging range of these features. Therefore, LSE applies to indirect effects (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).
- d. Structures or devices which have the potential to pose an above water collision risk to these features will not be introduced during any development phase. Surface feeding species are not considered to be vulnerable to below water collisions. The potential for an effect is therefore considered negligible and therefore no LSE applies to collision (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- e. Structures or devices which have the potential to pose an above water collision risk to this feature will not be introduced during any development phase. Structures or devices within the water column associated with the Proposed Development will only be used in the context of operating vessels (e.g. vessels towing equipment). Below water collision risk is therefore considered to be negligible since it is likely that this moderately sensitive feature will simply avoid construction or maintenance vessels. Therefore, no LSE applies (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- f. There is no pathway for marine works to introduce invasive non-indigenous predators (e.g. mink) to breeding colonies for these features and therefore no LSE applies to INIS (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- g. Unplanned oil or chemical spillages from vessels may occur during all development phases. Spills have the potential to directly affect these features when utilising the sea surface e.g. through direct oiling resulting in mortality. Therefore, LSE applies to accidental spills (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).
- h. Unplanned disposal of industrial or user plastic into the water column during all development phases has the potential to directly affect these features and their prey species present in the water column e.g. through ingestion or entanglement resulting in mortality. Therefore, LSE applies to litter (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).
- i. Disturbance and displacement of prey species present within the water column during all phases of development is considered to be negligible since it is likely that fish species present in the Solent are accustomed to vessel traffic and the presence of vessels towing equipment (e.g. commercial fishing vessels) and will simply navigate round or under any construction or maintenance vessels. Therefore, no LSE applies (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).
- j. Increases in SSC as a result of HDD works, cable burial activities and cable maintenance may increase turbidity of this supporting habitat, altering prey availability though changes in primary production by phytoplankton, as well as making it harder for visual foraging features to see prey from the sea surface. Therefore, LSE applies (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).
- k. Invasive species may be introduced into the water column via biofouling or ballast water from vessels. However, these will not be harmful to prey species present in the water column. The introduction of non-burial protection (0.7 km²) is not predicted to affect the abundance and distribution of INIS which are already abundant and widely distributed in the English Channel. Therefore, no LSE applies (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- l. Unplanned oil or chemical spillages from vessels may occur during all development phases. Oil can cause sublethal impacts on juvenile fish growth and survival, thus potentially affecting prey availability. Therefore, LSE applies to accidental spills (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).

HRA Screening Matrix 2B: Chichester and Langstone Harbours SPA (Marine Ornithology – In Combination)

Name of European Site: Chichester and Langstone Harbours SPA (Marine Ornithology)																		
Distance to Proposed Development: 0.1 km																		
European site feature	Likely Effects of the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Dark-bellied brent goose (W)																		
Shelduck (W)																		
Shoveler (W)																		

Name of European Site: Chichester and Langstone Harbours SPA (Marine Ornithology)																		
Distance to Proposed Development: 0.1 km																		
European site feature	Likely Effects of the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Wigeon (W)																		
Pintail (W)																		
Teal (W)																		
Red-breasted merganser (W)	√a	√a	√a	√a	√a	√a	xd	xd	xd				√a	√a	√a	√a	√a	√a
Grey plover (W)																		
Ringed plover (W)																		
Curlew (W)																		
Bar-tailed godwit (W)																		
Turnstone (W)																		
Sanderling (W)																		
Dunlin (W)																		
Redshank (W)																		
Sandwich tern (B)	xb	xb	xb	√a	√a	√a	xc	xc	xc	xe	xe	xe	√a	√a	√a	√a	√a	√a
Little tern (B)	√a	√a	√a	√a	√a	√a	xc	xc	xc	xe	xe	xe	√a	√a	√a	√a	√a	√a
Common tern (B)	xb	xb	xb	√a	√a	√a	xc	xc	xc	xe	xe	xe	√a	√a	√a	√a	√a	√a
Supporting habitat (water column)	xf	xf	xf	√a	√a	√a				xg	xg	xg	√a	√a	√a	√a	√a	√a
Supporting Habitat Coastal Lagoons																		
Supporting Habitat Coastal reedbeds																		
Supporting Habitat Freshwater and coastal grazing marsh																		
Supporting Habitat Salicornia and other annuals colonising mud and sand																		
Supporting Habitat Atlantic salt meadows																		
Supporting Habitat Spartina swards																		
Supporting Habitat Intertidal seagrass beds																		
Supporting Habitat Intertidal rock																		
Supporting Habitat Intertidal coarse sediment																		
Supporting Habitat Intertidal mixed sediment																		
Supporting Habitat Intertidal mud																		
Supporting Habitat Intertidal sand and muddy sand																		
Supporting Habitat Subtidal coarse sediment																		

Evidence supporting conclusions :

- a. LSE applies to the Proposed Development alone (HRA Report (APP-491, Rev 002) Sections 8.2.4 and 9.1.5, Table 9.1). Therefore, potential in combination adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (See HRA Integrity Matrix 2A and 2B).

- b. Given that these features are not considered to be sensitive to disturbance from vessel traffic and associated activities, the potential for an in combination effect from displacement is considered to be negligible across all development phases. Therefore, no in combination LSE applies to disturbance & displacement for these features (HRA Report (APP-491, Rev 002) Section 8.2.4).
- c. Structures or devices which have the potential to pose an above water collision risk to these features will not be introduced during any development phase. Surface feeding species are not considered to be vulnerable to below water collisions. The potential for an in combination effect is therefore considered negligible and therefore no in combination LSE applies to collision (HRA Report (APP-491, Rev 002) Section 8.2.4).
- d. Structures or devices which have the potential to pose an above water collision risk to this feature will not be introduced during any development phase. Structures or devices within the water column associated with the Proposed Development will only be used in the context of operating vessels (e.g. vessels towing equipment). Below water collision risk is therefore considered to be negligible since it is likely that this moderately sensitive feature will simply avoid construction or maintenance vessels. Therefore, no in combination LSE applies (HRA Report (APP-491, Rev 002) Section 8.2.4).
- e. There is no pathway for marine works to introduce invasive non-indigenous predators (e.g. mink) to breeding colonies for these features and therefore no in combination LSE applies to INIS (HRA Report (APP-491, Rev 002) Section 8.2.4).
- f. Disturbance and displacement of prey species present within the water column during all phases of development is considered to be negligible since it is likely that fish species present in the Solent are accustomed to vessel traffic and the presence of vessels towing equipment (e.g. commercial fishing vessels) and will simply navigate round or under any construction or maintenance vessels. Therefore, no in combination LSE applies (HRA Report (APP-491, Rev 002) Section 8.2.4).
- g. Invasive species may be introduced into the water column via biofouling or ballast water from vessels. However, these will not be harmful to prey species present in the water column. The introduction of non-burial protection (0.7 km²) is not predicted to affect the abundance and distribution of INIS which are already abundant and widely distributed in the English Channel. Therefore, no in combination LSE applies (HRA Report (APP-491, Rev 002) Section 8.2.4).

HRA Screening Matrix 2C: Chichester and Langstone Harbours SPA (Onshore Ecology)

Name of European Site: Chichester and Langstone Harbours SPA (Onshore Ornithology)																					
Distance to Proposed Development: 0.1 km																					
European site feature	Likely Effects of the Proposed Development (Alone)																				
	Disturbance & displacement			Visual disturbance			Light pollution			Indirect effects			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Shelduck (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Shoveler (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Wigeon (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Pintail (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Teal (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Red-breasted merganser (W)																					
Grey plover (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Ringed plover (W)	x b	x d	x b	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Curlew (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Bar-tailed godwit (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Turnstone (W)	x b	x d	x b	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Sanderling (W)	x b	x d	x b	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Dunlin (W)	x b	x d	x b	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Redshank (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Waterfowl assemblage (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Sandwich tern (B)	x c	x c	x c	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k

Name of European Site: Chichester and Langstone Harbours SPA (Onshore Ornithology)																					
Distance to Proposed Development: 0.1 km																					
European site feature	Likely Effects of the Proposed Development (Alone)																				
	Disturbance & displacement			Visual disturbance			Light pollution			Indirect effects			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Little tern (B)	x _c	x _c	x _c	x _e	x _e	x _e	x _f	x _f	x _f	x _g	x _g	x _g	x _i	x _i	x _i	✓ _j	✓ _j	✓ _j	✓ _k	✓ _k	✓ _k
Common tern (B)	x _c	x _c	x _c	x _e	x _e	x _e	x _f	x _f	x _f	x _g	x _g	x _g	x _i	x _i	x _i	✓ _j	✓ _j	✓ _j	✓ _k	✓ _k	✓ _k
Supporting habitat: freshwater and coastal grazing marsh	x _l	x _l	x _l							✓ _h	x _h	✓ _h	x _i	x _i	x _i	✓ _j	✓ _j	✓ _j	✓ _k	✓ _k	✓ _k

Evidence supporting conclusions:

- a. Cutts *et al.* (2013) determines that these species are either highly or moderately sensitive to disturbance. All these species were recorded in varying numbers in intertidal areas adjacent to the onshore works of the Proposed Development (document reference 6.3.16.13, ES Technical Appendix 16.13). Therefore, LSE applies to disturbance and displacement (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2). Potential adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (see HRA Integrity Matrix 2C and 2D).
- b. Cutts *et al.* (2013) determines that turnstone, sanderling, ringed plover and dunlin are of low sensitivity to disturbance. Although all these species were found to be present in intertidal habitat adjacent to onshore works of the Proposed Development (document reference 6.3.16.13, ES Technical Appendix 16.13) these species are considered to be extremely tolerant of any disturbance mechanisms from the Proposed Development and are likely to rapidly habituate. Therefore, no LSE applies to disturbance and displacement for these features (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).
- c. While tern colonies exist within both Chichester and Langstone Harbours, specific surveys for the Proposed Development did not locate any breeding individuals or indeed foraging flights (document reference 6.3.16.13, ES Technical Appendix 16.13). Therefore, terns are not expected to be exposed disturbance and displacement effects from any phase of the Proposed Development from onshore activities (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).
- d. There is predicted to be no disturbance or displacement events as a result of onshore activities during the operational phase. Therefore, no LSE applies to disturbance & displacement for these features (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).
- e. Visual disturbance is considered to be of a negligible magnitude as a result of the Proposed Development. The SPA is in an urban setting and recent research has established that disturbance does not have a significant impact on waders in an estuary close to conurbations (Goss-Custard *et al.*, 2019). Therefore, no LSE applies to visual disturbance for these features.
- f. Onshore works from the Proposed Development are not considered to result in any light spillage into the SPA. Therefore, no LSE applies to light pollution for these features (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).
- g. Wading bird species are not expected to be affected by any changes in water turbidity. Increases in suspended sediment as a result of HDD works, cable burial activities and cable maintenance is expected to be highly localised and return to within comparable background concentrations within days. Terns are visual foragers and are likely to be affected by an increase in turbidity which can make it harder to see prey in the water column. They are considered to be moderately sensitive to habitat disturbance and subsequent potential effects on prey (Bradbury *et al.*, 2014). Given the distance between the Proposed Development and favoured foraging and breeding grounds of tern species, it is considered that there is no potential for impact during any development phase. Therefore, no LSE applies to indirect effects (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).
- h. Onshore works have the potential to result in temporary habitat loss of supporting / functionally linked habitat (through the Solent Wader and Brent Goose Strategy network) during the construction and decommissioning phases. Therefore, LSE applies to disturbance and displacement (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2). Potential adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (See HRA Integrity Matrix 2C and 2D).
- i. There is no pathway for onshore construction work activities associated with the Proposed Development to introduce invasive non-indigenous predators to tern breeding colonies. The risk of other invasive non-indigenous species affecting other waterbird species and supporting habitat is considered negligible through the techniques applied to construction (i.e. HDD). Therefore, no LSE applies to INIS (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).
- j. Unplanned oil or chemical spillages from construction activity may occur during all development phases. Spills have the potential to directly affect all SPA features when in contact supporting habitat through direct oiling resulting in mortality. Therefore, LSE applies to accidental spills (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2). Potential adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (See HRA Integrity Matrix 2C and 2D).

- k. Unplanned disposal of industrial or user plastic during all development phases has the potential to directly affect SPA features and supporting habitat when utilising intertidal habitat through ingestion or entanglement resulting in mortality. Therefore, LSE applies to litter (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2). Potential adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (see HRA Integrity Matrix 2C and 2D).
- l. Disturbance and displacement of prey species present during all phases of development is considered to be negligible due to the construction methodology applied (HDD). Therefore, no LSE applies to disturbance and displacement for supporting habitat (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).

HRA Screening Matrix 2D: Chichester and Langstone Harbours SPA (Onshore Ecology – In Combination)

Name of European Site: Chichester and Langstone Harbours SPA (Onshore Ecology – In Combination)																					
Distance to Proposed Development: 0.1 km																					
European site feature	Likely Effects of the Proposed Development (In Combination)																				
	Disturbance & displacement			Visual disturbance			Light pollution			Indirect effects			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Shelduck (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Shoveler (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Wigeon (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Pintail (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Teal (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Red-breasted merganser (W)																					
Grey plover (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Ringed plover (W)	x b	x d	x b	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Curlew (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Bar-tailed godwit (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Turnstone (W)	x b	x d	x b	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Sanderling (W)	x b	x d	x b	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Dunlin (W)	x b	x d	x b	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Redshank (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Waterfowl assemblage (W)	√a	x d	√a	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Sandwich tern (B)	x c	x c	x c	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Little tern (B)	x c	x c	x c	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Common tern (B)	x c	x c	x c	x e	x e	x e	x f	x f	x f	x g	x g	x g	x i	x i	x i	√j	√j	√j	√k	√k	√k
Supporting habitat (Freshwater and grazing marsh)	x l	x l	x l							√h	x h	√h	x i	x i	x i	√j	√j	√j	√k	√k	√k

Evidence supporting conclusions:

- a. LSE applies to the Proposed Development alone. Therefore, potential for adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (See HRA Integrity Matrix 2D).
- b. Given that these features are not considered to be sensitive to disturbance the potential for an in combination effect from displacement is considered to be negligible across all development phases. Therefore, no in combination LSE applies to disturbance & displacement for these features (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).

- c. Terns and red-breasted merganser being marine features which have either breeding colonies (terns) and wintering foraging areas (red-breasted merganser) that are distant from onshore components of the Proposed Development. These features are not expected to be exposed disturbance and displacement effects from any phase of the Proposed Development from onshore activities. Therefore, no in combination LSE applies to disturbance & displacement for these features (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).
- d. Given that no operational effects of disturbance are predicted, no in combination LSE applies (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).
- e. Visual disturbance is considered to be of a negligible magnitude as a result of the Proposed Development. Therefore, no in combination LSE applies for these features (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).
- f. Onshore works from the Proposed Development are not considered to result in any light spillage into the SPA. Therefore, no in combination LSE applies for these features (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).
- g. Given that wading bird species are not expected to be affected by any changes in water turbidity and the distance between the Proposed Development and favoured foraging and breeding grounds of tern species, it is considered that there is no potential for impact during any development phase. Therefore, no in combination LSE applies for these features (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).
- h. LSE applies to the Proposed Development alone for the construction and decommissioning phases. Therefore, potential for adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (See HRA Integrity Matrix 2D).
- i. There is no pathway for onshore construction work activities associated with the Proposed Development to introduce invasive non-indigenous predators to tern breeding colonies. The risk of other invasive non-indigenous species affecting other waterbird species and supporting habitat is considered negligible through the techniques applied to construction (i.e. HDD). Therefore, no in combination LSE applies for these features (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).
- j. LSE applies to the Proposed Development alone (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).. Therefore, potential for adverse effects on site
- k. LSE applies to the Proposed Development alone (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).. Therefore, potential for adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (See HRA Integrity Matrix 2D).
- l. Disturbance and displacement of prey species present during all phases of development is considered to be negligible. Therefore, no in combination LSE applies for these features (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2). Therefore, the potential for in combination adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (see HRA Integrity Matrix 2D).

HRA Screening Matrix 3A: Portsmouth Harbour SPA (Marine Ornithology)

Name of European Site: Portsmouth Harbour SPA (Marine Ornithology)																		
Distance to Proposed Development: 4.9 km																		
European site feature	Likely Effects of the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)																		
Red-breasted merganser (W)	x a	x a	x a	x b	x b	x b	x c	x c	x c				√d	√d	√d	√e	√e	√e
Black-tailed godwit (W)																		
Dunlin (W)																		
Supporting habitat (water column)	x f	x f	x f	x g	x g	x g				x h	x h	x h	√i	√i	√i	√e	√e	√e
Supporting Habitat Coastal lagoons																		
Supporting Habitat Freshwater and coastal grazing marsh																		
Supporting Habitat Salicornia and other annuals colonising mud and sand																		
Supporting Habitat Atlantic salt meadows																		
Supporting Habitat Spartina swards																		
Supporting Habitat Intertidal seagrass beds																		

Name of European Site: Portsmouth Harbour SPA (Marine Ornithology)																		
Distance to Proposed Development: 4.9 km																		
European site feature	Likely Effects of the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Supporting Habitat Intertidal coarse sediments																		
Supporting Habitat Intertidal mixed sediments																		
Supporting Habitat Intertidal mud																		
Supporting Habitat Subtidal mixed sediments																		
Supporting Habitat Subtidal mud																		

Evidence supporting conclusions :

- a. The distance between the Proposed Development and favoured foraging/roosting areas in Portsmouth Harbour is considered to be sufficient as to ensure no disturbance or displacement of red-breasted mergansers utilising this SPA during any development phase (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- b. Increases in SSC as a result of HDD works, cable burial activities and cable maintenance is expected to be highly localised. Given the distance between the Proposed Development and favoured foraging and roosting grounds in Portsmouth Harbour, it is considered that there is no potential for impact during any development phase (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- c. Structures or devices which have the potential to pose an above water collision risk to this feature will not be introduced during any development phase. Structures or devices within the water column associated with the Proposed Development will only be used in the context of operating vessels (e.g. vessels towing equipment). Below water collision risk is therefore considered to be negligible since it is likely that this moderately sensitive feature will simply avoid construction or maintenance vessels. Therefore, no LSE applies (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- d. Unplanned oil or chemical spillages from vessels may occur during all development phases. Spills have the potential to directly affect these features when utilising the sea surface e.g. through direct oiling resulting in mortality. Therefore, LSE applies to accidental spills (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).
- e. Unplanned disposal of industrial or user plastic into the water column during all development phases has the potential to directly affect these features and their prey species present in the water column e.g. through ingestion or entanglement resulting in mortality. Therefore, LSE applies to litter (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).
- f. Disturbance and displacement of prey species present within the water column during all phases of development is considered to be negligible since it is likely that fish species present in the Solent are accustomed to vessel traffic and the presence of vessels towing equipment (e.g. commercial fishing vessels) and will simply navigate round or under any construction or maintenance vessels. Therefore, no LSE applies (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- g. Increases in SSC as a result of HDD works, cable burial activities and cable maintenance are expected to be highly localised and will not alter prey availability in the water column at Portsmouth Harbour due to distance. Therefore, no LSE applies (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- h. Invasive species may be introduced into the water column via biofouling or ballast water from vessels. However, these will not be harmful to prey species present in the water column. The introduction of non-burial protection (0.7 km²) is not predicted to affect the abundance and distribution of INIS which are already abundant and widely distributed in the English Channel. Therefore, no LSE applies (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- i. Unplanned oil or chemical spillages from vessels may occur during all development phases. Oil can cause sublethal impacts on juvenile fish growth and survival, thus potentially affecting prey availability. Therefore, LSE applies to accidental spills (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).

HRA Screening Matrix 3B: Portsmouth Harbour SPA (Marine Ornithology – In Combination)

Name of European Site: Portsmouth Harbour SPA (Marine Ornithology)																		
Distance to Proposed Development: 4.9 km																		
European site feature	Likely Effects of the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)																		
Red-breasted merganser (W)	x b	x b	x b	x c	x c	x c	x d	x d	x d				√ a	√ a	√ a	√ a	√ a	√ a
Black-tailed godwit (W)																		
Dunlin (W)																		
Supporting habitat (water column)	x e	x e	x e	x f	x f	x f				x g	x g	x g	√ a	√ a	√ a	√ a	√ a	√ a
Supporting habitat Coastal lagoons																		
Supporting habitat Freshwater and coastal grazing marsh																		
Supporting habitat Salicornia and other annuals colonising mud and sand																		
Supporting habitat Atlantic salt meadows																		
Supporting habitat Spartina swards																		
Supporting habitat Intertidal seagrass beds																		
Supporting habitat Intertidal coarse sediments																		
Supporting habitat Intertidal mixed sediments																		
Supporting habitat Intertidal mud																		
Supporting habitat Subtidal mixed sediments																		
Supporting habitat Subtidal mud																		

Evidence supporting conclusions:

- a. LSE applies to the Proposed Development alone. (HRA Report (APP-491, Rev 002) (Section 8.2.4 and 9.1.5) Table 9.1). Therefore, potential in combination adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (See HRA Integrity Matrix 3A and 3B)
- b. The distance between the Proposed Development and favoured foraging/roosting areas in Portsmouth Harbour is considered to be sufficient as to ensure no disturbance or displacement of red-breasted mergansers utilising this SPA during any development phase. Therefore, no in combination LSE applies (HRA Report (APP-491, Rev 002) Section 8.2.4).
- c. Increases in SSC as a result of HDD works, cable burial activities and cable maintenance is expected to be highly localised. Given the distance between the Proposed Development and favoured foraging and roosting grounds in Portsmouth Harbour, it is considered that there is no potential for in combination impact during any development phase (HRA Report (APP-491, Rev 002) Section 8.2.4).
- d. Structures or devices which have the potential to pose an above water collision risk to this feature will not be introduced during any development phase. Structures or devices within the water column associated with the Proposed Development will only be used in the context of operating vessels (e.g. vessels towing equipment). Below water collision risk is therefore considered to be negligible since it is likely that this moderately sensitive feature will simply avoid construction or maintenance vessels. Therefore, no in combination LSE applies (HRA Report (APP-491, Rev 002) Section 8.2.4).
- e. Disturbance and displacement of prey species present within the water column during all phases of development is considered to be negligible since it is likely that fish species present in the Solent are accustomed to vessel traffic and the presence of vessels towing equipment (e.g. commercial fishing vessels) and will simply navigate round or under any construction or maintenance vessels. Therefore, no in combination LSE applies (HRA Report (APP-491, Rev 002) Section 8.2.4).

- f. Increases in SSC as a result of HDD works, cable burial activities and cable maintenance are expected to be highly localised and will not alter prey availability in the water column at Portsmouth Harbour due to distance. Therefore, no in combination LSE applies (HRA Report (APP-491, Rev 002) Section 8.2.4).
- g. Invasive species may be introduced into the water column via biofouling or ballast water from vessels. However, these will not be harmful to prey species present in the water column. The introduction of non-burial protection (0.7 km²) is not predicted to affect the abundance and distribution of INIS which are already abundant and widely distributed in the English Channel. Therefore, no in combination LSE applies (HRA Report (APP-491, Rev 002) Section 8.2.4).

HRA Screening Matrix 3C: Portsmouth Harbour SPA (Onshore Ecology)

Name of European Site: Portsmouth Harbour SPA (Onshore Ecology)																					
Distance to Proposed Development: 4.9 km																					
European site feature	Likely Effects of the Proposed Development (Alone)																				
	Disturbance & displacement			Visual disturbance			Light pollution			Indirect effects			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)	√a	xb	√a	xd	xd	xd	xe	xe	xe	xf	xf	xf	xh	xh	xh	√i	√i	√i	√j	√j	√j
Red-breasted merganser (W)																					
Black-tailed godwit (W)	xc	xb	xc	xd	xd	xd	xe	xe	xe	xf	xf	xf	xh	xh	xh	√i	√i	√i	√j	√j	√j
Dunlin (W)	xc	xb	xc	xd	xd	xd	xe	xe	xe	xf	xf	xf	xh	xh	xh	√i	√i	√i	√j	√j	√j
Supporting habitat: freshwater and grazing marsh	xc	xb	xc							√g	xg	√g	xh	xh	xh	√i	√i	√i	√j	√j	√j

Evidence supporting conclusions:

- a. Cutts *et al.* (2013) determines that dark-bellied brent goose is highly sensitive to disturbance. While the distance between the Proposed Development and favoured foraging/roosting areas in Portsmouth Harbour is considered to be sufficient as to ensure that there no disturbance or displacement direct to the SPA, there is potential for brent geese to be disturbed when using functionally linked / supporting habitat (SWBGS) during the construction and decommissioning phases. Therefore, LSE applies to disturbance and displacement (HRA Report (APP-491, Rev 002) HRA Report (APP-491, Rev 002) Section 7.3 and Table 7.10). Potential adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (see HRA Integrity Matrix 3C and 3D).
- b. There is predicted to be no disturbance or displacement events as a result of onshore activities during the operational phase. Therefore, no LSE applies to disturbance and displacement for these features (HRA Report (APP-491, Rev 002) Section 7.3 and Table 7.10).
- c. The distance between the Proposed Development and favoured foraging/roosting areas in Portsmouth Harbour is considered to be sufficient as to ensure no disturbance or displacement of any qualifying features or supporting habitat takes place during any development phase, while supporting habitat is not sensitive to disturbance effects from noise or vibration.. Black-tailed Godwit and dunlin do not utilise SWBGS sites potentially impacted by the Proposed Development. Therefore, no LSE applies to disturbance and displacement (HRA Report (APP-491, Rev 002) Section 7.3 and Table 7.10).
- d. The distance between the Proposed Development and favoured foraging/roosting areas in Portsmouth Harbour is considered to be sufficient as to ensure no visual disturbance of any qualifying features or supporting habitat takes place during any development phase. Visual disturbance is in any case considered to be of a negligible magnitude as a result of the Proposed Development. The SPA is in an urban setting and recent research has established that disturbance does not have a significant impact on waders in an estuary close to conurbations (Goss-Custard *et al.*, 2019).Therefore, no LSE applies to visual disturbance (HRA Report (APP-491, Rev 002) Section 7.3 and Table 7.10).
- e. The distance between the Proposed Development and favoured foraging/roosting areas in Portsmouth Harbour is considered to be sufficient as to ensure no light pollution effects of any qualifying features or supporting habitat takes place during any development phase. Therefore, no LSE applies to light pollution (HRA Report (APP-491, Rev 002) Section 7.3 and Table 7.10).
- f. Increases in suspended sediment as a result of HDD works, cable burial activities and cable maintenance are expected to be highly localised and return to within comparable background concentrations within days. Given the distance between the Proposed Development and favoured foraging, breeding and roosting grounds of the SPA, it is considered that there is no potential for impact during any development phase on either qualifying features or supporting habitat. Therefore, no LSE applies to indirect effects (HRA Report (APP-491, Rev 002) Section 7.3 and Table 7.10).

- g. Onshore works have the potential to result in temporary habitat loss of supporting / functionally linked habitat (through the Solent Wader and Brent Goose Strategy network) during the construction and decommissioning phases. Therefore, LSE applies to disturbance and displacement (HRA Report (APP-491, Rev 002) Section 7.3 and Table 7.10). Potential adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (See HRA Integrity Matrix 3C and 3D).
- h. There is no pathway for onshore construction work activities associated with the Proposed Development to introduce invasive non-indigenous species to the SPA. Therefore, no LSE applies to INIS.
- i. Unplanned oil or chemical spillages from construction activity may occur during all development phases. Spills have the potential to directly affect all SPA features when in contact supporting habitat through direct oiling resulting in mortality. Therefore, LSE applies to accidental spills (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2). Potential adverse effects on site integrity are considered in the Stage2 Integrity matrices below (see HRA Integrity Matrix 3C and 3D).
- j. Unplanned disposal of industrial or user plastic during all development phases has the potential to directly affect SPA features and supporting habitat when utilising intertidal habitat through ingestion or entanglement resulting in mortality. Therefore, LSE applies to litter (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2). Potential adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (See HRA Integrity Matrix 3C and 3D).

HRA Screening Matrix 3D: Portsmouth Harbour SPA (Onshore Ecology – In Combination)

Name of European Site: Portsmouth Harbour SPA (Onshore Ecology – In Combination)																					
Distance to Proposed Development: 4.9 km																					
European site feature	Likely Effects of the Proposed Development (In Combination)																				
	Disturbance & displacement			Visual disturbance			Light pollution			Indirect effects			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)	✓a	xb	✓a	xd	xd	xd	xe	xe	xe	xf	xf	xf	xh	xh	xh	✓i	✓i	✓i	✓j	✓j	✓j
Red-breasted merganser (W)																					
Black-tailed godwit (W)	xc	xb	xc	xd	xd	xd	xe	xe	xe	xf	xf	xf	xh	xh	xh	✓i	✓i	✓i	✓j	✓j	✓j
Dunlin (W)	xc	xb	xc	xd	xd	xd	xe	xe	xe	xf	xf	xf	xh	xh	xh	✓i	✓i	✓i	✓j	✓j	✓j
Supporting habitat: freshwater and grazing marsh	xc	xb	xc							xg	xg	xg	xh	xh	xh	✓i	✓i	✓i	✓j	✓j	✓j

Evidence supporting conclusions:

- a. LSE applies to the Proposed Development alone. Therefore, potential for adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (see HRA Integrity Matrix 3D).
- b. There is predicted to be no disturbance or displacement events as a result of onshore activities during the operational phase. Therefore, no in combination LSE applies to disturbance & displacement for these features (HRA Report (APP-491, Rev 002) Section 7.3 and Table 7.10).
- c. The distance between the Proposed Development and favoured foraging/roosting areas in Portsmouth Harbour is considered to be sufficient as to ensure no disturbance or displacement of any qualifying features or supporting habitat takes place during any development phase while supporting habitat is not sensitive to disturbance effects from noise or vibration. Black-tailed Godwit and dunlin do not utilise SWBGS sites potentially impacted by the Proposed Development due to absence of appropriate habitat. Therefore, no in combination LSE applies to disturbance and displacement (HRA Report (APP-491, Rev 002) Section 7.3 and Table 7.10).
- d. The distance between the Proposed Development and favoured foraging/roosting areas in Portsmouth Harbour is considered to be sufficient as to ensure no visual disturbance of any qualifying features or supporting habitat takes place during any development phase. Visual disturbance is in any case considered to be of a negligible magnitude as a result of the Proposed Development. The SPA is in an urban setting and recent research has established that disturbance does not have a significant impact on waders in an estuary close to conurbations (Goss-Custard *et al.*, 2019). Therefore, no in combination LSE applies to visual disturbance (HRA Report (APP-491, Rev 002) Section 7.3 and Table 7.10).
- e. The distance between the Proposed Development and favoured foraging/roosting areas in Portsmouth Harbour is considered to be sufficient as to ensure no light pollution effects of any qualifying features or supporting habitat takes place during any development phase. Therefore, no in combination LSE applies to light pollution (HRA Report (APP-491, Rev 002) Section 7.3 and Table 7.10).

- f. Increases in suspended sediment as a result of HDD works, cable burial activities and cable maintenance is expected to be highly localised and return to within comparable background concentrations within days. Given the distance between the Proposed Development and favoured foraging, breeding and roosting grounds of the SPA, it is considered that there is no potential for impact during any development phase on either qualifying features or supporting habitat. Therefore, no in combination LSE applies to indirect effects (HRA Report (APP-491, Rev 002) Section 7.3 and Table 7.10).
- g. LSE applies to the Proposed Development alone. Therefore, potential for adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (See HRA Integrity Matrix 3D).
- h. There is no pathway for onshore construction work activities associated with the Proposed Development to introduce invasive non-indigenous species to the SPA. Therefore, no in combination LSE applies to INIS (HRA Report (APP-491, Rev 002) Section 7.3 and Table 7.10).
- i. LSE applies to the Proposed Development alone (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2).. Therefore, potential for adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (See HRA Integrity Matrix 3D).
- j. LSE applies to the Proposed Development alone (HRA Report (APP-491, Rev 002) Sections 7.3 and 9.2, Tables 7.10 and 9.2). Therefore, the potential for in combination adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (see HRA Integrity Matrix 3D).

HRA Screening Matrix 4A: Solent and Southampton Water SPA (Marine Ornithology)

Name of European Site: Solent and Southampton Water SPA (Marine Ornithology)																		
Distance to Proposed Development: 6.6 km																		
European site feature	Likely Effects of the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)																		
Teal (W)																		
Ringed plover (W)																		
Black-tailed godwit (W)																		
Mediterranean gull (B)	xf	xf	xf	xg	xg	xg	xb	xb	xb	xc	xc	xc	√d	√d	√d	√e	√e	√e
Sandwich tern (B)	xf	xf	xf	xg	xg	xg	xb	xb	xb	xc	xc	xc	√d	√d	√d	√e	√e	√e
Little tern (B)	xa	xa	xa	xa	xa	xa	xb	xb	xb	xc	xc	xc	√d	√d	√d	√e	√e	√e
Roseate tern (B)	xf	xf	xf	xg	xg	xg	xb	xb	xb	xc	xc	xc	√d	√d	√d	√e	√e	√e
Common tern (B)	xf	xf	xf	xg	xg	xg	xb	xb	xb	xc	xc	xc	√d	√d	√d	√e	√e	√e
Supporting habitat (water column)	xh	xh	xh	xg	xg	xg				xi	xi	xi	√j	√j	√j	√e	√e	√e
Supporting habitat Coastal lagoons																		
Supporting habitat Coastal reedbeds																		
Supporting habitat Freshwater and coastal grazing marsh																		
Supporting habitat Salicornia and other annulus colonising mud and sand																		
Supporting habitat Atlantic salt meadows																		
Supporting habitat Spartina swards																		
Supporting habitat Intertidal seagrass beds																		
Supporting habitat Intertidal rocks																		
Supporting habitat Intertidal coarse sediment																		
Supporting habitat Intertidal mixed sediments																		
Supporting habitat Intertidal mud																		
Supporting habitat Intertidal sand and muddy sand																		
Supporting habitat Intertidal rock																		
Supporting habitat Subtidal seagrass beds																		

Name of European Site: Solent and Southampton Water SPA (Marine Ornithology)																		
Distance to Proposed Development: 6.6 km																		
European site feature	Likely Effects of the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Supporting habitat Circolittoral rock																		

Evidence supporting conclusions :

- a. Important breeding and foraging areas within this SPA are located >15 km from the Proposed Development. Therefore, it is considered that there is no potential for impact during any development phase based on this feature’s restricted foraging range (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- b. Structures or devices which have the potential to pose an above water collision risk to these features will not be introduced during any development phase. Surface feeding species are not considered to be vulnerable to below water collisions. The potential for an effect is therefore considered negligible and therefore no LSE applies to collision (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- c. There is no pathway for marine works to introduce invasive non-indigenous predators (e.g. mink) to breeding colonies for these features and therefore no LSE applies to INIS (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- d. Unplanned oil or chemical spillages from vessels may occur during all development phases. Spills have the potential to directly affect these features when utilising the sea surface e.g. through direct oiling resulting in mortality. Therefore, LSE applies to accidental spills (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).
- e. Unplanned disposal of industrial or user plastic into the water column during all development phases has the potential to directly affect these features and their prey species present in the water column e.g. through ingestion or entanglement resulting in mortality. Therefore, LSE applies to litter (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).
- f. Given that these features are not considered to be sensitive to disturbance from vessel traffic and associated activities, the potential for an effect from displacement is considered to be negligible across all development phases. Therefore, no LSE applies to disturbance & displacement for these features (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- g. Changes in prey availability and behaviour resulting from marine works across all development phases has not been identified as likely to occur at a scale as to affect these features. The potential for an effect is considered negligible and therefore no LSE applies to changes in prey (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- h. Disturbance and displacement of prey species present within the water column during all phases of development is considered to be negligible since it is likely that fish species present in the Solent are accustomed to vessel traffic and the presence of vessels towing equipment (e.g. commercial fishing vessels) and will simply navigate round or under any construction or maintenance vessels. Therefore, no LSE applies (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- i. Invasive species may be introduced into the water column via biofouling or ballast water from vessels. However, these will not be harmful to prey species present in the water column. The introduction of non-burial protection (0.7 km²) is not predicted to affect the abundance and distribution of INIS which are already abundant and widely distributed in the English Channel. Therefore, no LSE applies (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- j. Unplanned oil or chemical spillages from vessels may occur during all development phases. Oil can cause sublethal impacts on juvenile fish growth and survival, thus potentially affecting prey availability. Therefore, LSE applies to accidental spills (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).

HRA Screening Matrix 4B: Solent and Southampton Water SPA (Marine Ornithology – In Combination)

Name of European Site: Solent and Southampton Water SPA (Marine Ornithology)																		
Distance to Proposed Development: 6.6 km																		
European site feature	Likely Effects of the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)																		
Teal (W)																		
Ringed plover (W)																		

Name of European Site: Solent and Southampton Water SPA (Marine Ornithology)																		
Distance to Proposed Development: 6.6 km																		
European site feature	Likely Effects of the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Black-tailed godwit (W)																		
Mediterranean gull (B)	xe	xe	xe	xf	xf	xf	xc	xc	xc	xd	xd	xd	✓a	✓a	✓a	✓a	✓a	✓a
Sandwich tern (B)	xe	xe	xe	xf	xf	xf	xc	xc	xc	xd	xd	xd	✓a	✓a	✓a	✓a	✓a	✓a
Little tern (B)	xb	xb	xb	xb	xb	xb	xc	xc	xc	xd	xd	xd	✓a	✓a	✓a	✓a	✓a	✓a
Roseate tern (B)	xe	xe	xe	xf	xf	xf	xc	xc	xc	xd	xd	xd	✓a	✓a	✓a	✓a	✓a	✓a
Common tern (B)	xe	xe	xe	xf	xf	xf	xc	xc	xc	xd	xd	xd	✓a	✓a	✓a	✓a	✓a	✓a
Supporting habitat (water column)	xg	xg	xg	xf	xf	xf				xh	xh	xh	✓a	✓a	✓a	✓a	✓a	✓a
Supporting habitat Coastal lagoons																		
Supporting habitat Coastal reedbeds																		
Supporting habitat Freshwater and coastal grazing marsh																		
Supporting habitat Salicornia and other annuls colonising mud and sand																		
Supporting habitat Atlantic salt meadows																		
Supporting habitat Spartina swards																		
Supporting habitat Intertidal seagrass beds																		
Supporting habitat Intertidal rocks																		
Supporting habitat Intertidal coarse sediment																		
Supporting habitat Intertidal mixed sediments																		
Supporting habitat Intertidal mud																		
Supporting habitat Intertidal sand and muddy sand																		
Supporting habitat Intertidal rock																		
Supporting habitat Subtidal seagrass beds																		
Supporting habitat Circalittoral rock																		

Evidence supporting conclusions :

- a. LSE applies to the Proposed Development alone. (HRA Report (APP-491, Rev 002) Sections 8.2.4 and 9.1.5, Table 9.1). Therefore, potential in combination adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (See HRA Integrity Matrix 4A and 4B).
- b. Important breeding and foraging areas within this SPA are located >15 km from the Proposed Development. Therefore, it is considered that there is no potential for impact during any development phase based on this feature’s restricted foraging range. Therefore, no in combination LSE can be concluded (HRA Report (APP-491, Rev 002) Section 8.2.4).
- c. Structures or devices which have the potential to pose an above water collision risk to these features will not be introduced during any development phase. Surface feeding species are not considered to be vulnerable to below water collisions. The potential for an in combination effect is therefore considered negligible and therefore no in combination LSE applies to collision (HRA Report (APP-491, Rev 002) Section 8.2.4).
- d. There is no pathway for marine works to introduce invasive non-indigenous predators (e.g. mink) to breeding colonies for these features and therefore no in combination LSE applies to INIS (HRA Report (APP-491, Rev 002) Section 8.2.4).
- e. Given that these features are not considered to be sensitive to disturbance from vessel traffic and associated activities, the potential for an effect from displacement is considered to be negligible across all development phases. Therefore, no in combination LSE applies to disturbance & displacement for these features (HRA Report (APP-491, Rev 002) Section 8.2.4).
- f. Changes in prey availability and behaviour resulting from marine works across all development phases has not been identified as likely to occur at a scale as to affect these features. The potential for an effect is considered negligible and therefore no in combination LSE applies to changes in prey (HRA Report (APP-491, Rev 002) Section 8.2.4).

- g. Disturbance and displacement of prey species present within the water column during all phases of development is considered to be negligible since it is likely that fish species present in the Solent are accustomed to vessel traffic and the presence of vessels towing equipment (e.g. commercial fishing vessels) and will simply navigate round or under any construction or maintenance vessels. Therefore, no in combination LSE applies (HRA Report (APP-491, Rev 002) Section 8.2.4).
- h. Invasive species may be introduced into the water column via biofouling or ballast water from vessels. However, these will not be harmful to prey species present in the water column. The introduction of non-burial protection (0.7 km²) is not predicted to affect the abundance and distribution of INIS which are already abundant and widely distributed in the English Channel. Therefore, no in combination LSE applies (HRA Report (APP-491, Rev 002) Section 8.2.4).

HRA Screening Matrix 5A: Pagham Harbour SPA (Marine Ornithology)

Name of European Site: Pagham Harbour SPA (Marine Ornithology)																		
Distance to Proposed Development: 9.5 km																		
European site feature	Likely Effects of the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)																		
Ruff (W)																		
Little tern (B)	x _a	x _a	x _a	x _a	x _a	x _a	x _a	x _a	x _a	x _a	x _a	x _a	x _a	x _a	x _a	x _a	x _a	x _a
Common tern (B)	x _b	x _b	x _b	x _c	x _c	x _c	x _d	x _d	x _d	x _e	x _e	x _e	✓ _f	✓ _f	✓ _f	✓ _g	✓ _g	✓ _g
Supporting habitat (water column)	x _h	x _h	x _h	x _c	x _c	x _c				x _i	x _i	x _i	✓ _j	✓ _j	✓ _j	✓ _g	✓ _g	✓ _g
Supporting habitat Coastal lagoons																		
Supporting habitat Freshwater and coastal grazing marsh																		
Supporting habitat Mediterranean and thermo-Atlantic halophilous scrubs																		
Supporting habitat Salicornia and other annuals colonising mud and sand																		
Supporting habitat Atlantic salt meadows																		
Supporting habitat Spartina swards																		
Supporting habitat Intertidal seagrass beds																		
Supporting habitat Intertidal coarse sediment																		
Supporting habitat Intertidal mud																		
Supporting habitat Intertidal sand and muddy sand																		

Evidence supporting conclusions :

- a. There is no pathway for marine works to impact this feature as the Proposed Development is situated outside the mean-maximum foraging range (little tern 6.3 km; Thaxter *et al.* 2012) (HRA Report (APP-491, Rev 002) Section 6.2.5, Table 6.6).
- b. Given that this feature is not considered to be sensitive to disturbance from vessel traffic and associated activities, the potential for an effect from displacement is considered to be negligible across all development phases. Therefore, no LSE applies to disturbance & displacement for this feature (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- c. Changes in prey availability and behaviour resulting from marine works across all development phases has not been identified as likely to occur at a scale as to affect these features. The potential for an effect is considered negligible and therefore no LSE applies (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).

- d. Structures or devices which have the potential to pose an above water collision risk to these features will not be introduced during any development phase. Surface feeding species are not considered to be vulnerable to below water collisions. The potential for an effect is therefore considered negligible and therefore no LSE applies to collision (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- e. There is no pathway for marine works to introduce invasive non-indigenous predators (e.g. mink) to breeding colonies for this feature and therefore no LSE applies to INIS (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- f. Unplanned oil or chemical spillages from vessels may occur during all development phases. Spills have the potential to directly affect these features when utilising the sea surface e.g. through direct oiling resulting in mortality. Therefore, LSE applies to accidental spills (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).
- g. Unplanned disposal of industrial or user plastic into the water column during all development phases has the potential to directly affect these features and their prey species present in the water column e.g. through ingestion or entanglement resulting in mortality. Therefore, LSE applies to litter (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).
- h. Disturbance and displacement of prey species present within the water column during all phases of development is considered to be negligible since it is likely that fish species present in the Solent are accustomed to vessel traffic and the presence of vessels towing equipment (e.g. commercial fishing vessels) and will simply navigate round or under any construction or maintenance vessels. Therefore, no LSE applies (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- i. Invasive species may be introduced into the water column via biofouling or ballast water from vessels. However, these will not be harmful to prey species present in the water column. The introduction of non-burial protection (0.7 km²) is not predicted to affect the abundance and distribution of INIS which are already abundant and widely distributed in the English Channel. Therefore, no LSE applies (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- j. Unplanned oil or chemical spillages from vessels may occur during all development phases. Oil can cause sublethal impacts on juvenile fish growth and survival, thus potentially affecting prey availability. Therefore, LSE applies to accidental spills (HRA Report (APP-491, Rev 002) Sections 7.2.4 and 9.1.5, Tables 7.9 and 9.1).

HRA Screening Matrix 5B: Pagham Harbour SPA (Marine Ornithology – In Combination)

Name of European Site: Pagham Harbour SPA (Marine Ornithology)																		
Distance to Proposed Development: 9.5 km																		
European site feature	Likely Effects of the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)																		
Ruff (W)																		
Little tern (B)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Common tern (B)	Xc	Xc	Xc	Xd	Xd	Xd	Xe	Xe	Xe	Xf	Xf	Xf	√b	√b	√b	√b	√b	√b
Supporting habitat (water column)	Xg	Xg	Xg	Xd	Xd	Xd				Xh	Xh	Xh	√b	√b	√b	√b	√b	√b
Supporting habitat Coastal lagoons																		
Supporting habitat Freshwater and coastal grazing marsh																		
Supporting habitat Mediterranean and thermo-Atlantic halophilous scrubs																		
Supporting habitat Salicornia and other annuals colonising mud and sand																		
Supporting habitat Atlantic salt meadows																		
Supporting habitat Spartina swards																		
Supporting habitat Intertidal seagrass beds																		
Supporting habitat Intertidal coarse sediment																		
Supporting habitat Intertidal mud																		
Supporting habitat Intertidal sand and muddy sand																		

Evidence supporting conclusions :

- a. There is no pathway for marine works to impact this feature as the Proposed Development is situated outside the mean-maximum foraging range (little tern 6.3 km; Thaxter *et al.* 2012) (HRA Report (APP-491, Rev 002) (Section 6.2.5) Table 6.6).
- b. LSE applies to the Proposed Development alone (HRA Report (APP-491, Rev 002) Sections 8.2.4 and 9.1.5, Table 9.1). Therefore, potential in combination adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (See HRA Integrity Matrix 5A and 5B).
- c. Given that this feature is not considered to be sensitive to disturbance from vessel traffic and associated activities, the potential for an in combination effect from displacement is considered to be negligible across all development phases. Therefore, no in combination LSE applies to disturbance & displacement for this feature (HRA Report (APP-491, Rev 002) Section 8.2.4).
- d. Changes in prey availability and behaviour resulting from marine works across all development phases has not been identified as likely to occur at a scale as to affect these features. The potential for an in combination effect is considered negligible and therefore no in combination LSE applies (HRA Report (APP-491, Rev 002) Section 8.2.4).
- e. Structures or devices which have the potential to pose an above water collision risk to these features will not be introduced during any development phase. Surface feeding species are not considered to be vulnerable to below water collisions. The potential for an in combination effect is therefore considered negligible and therefore no in combination LSE applies to collision (HRA Report (APP-491, Rev 002) Section 8.2.4).
- f. There is no pathway for marine works to introduce invasive non-indigenous predators (e.g. mink) to breeding colonies for this feature and therefore no in combination LSE applies to INIS (HRA Report (APP-491, Rev 002) Section 8.2.4).
- g. Disturbance and displacement of prey species present within the water column during all phases of development is considered to be negligible since it is likely that fish species present in the Solent are accustomed to vessel traffic and the presence of vessels towing equipment (e.g. commercial fishing vessels) and will simply navigate round or under any construction or maintenance vessels. Therefore, no in combination LSE applies (HRA Report (APP-491, Rev 002) Section 8.2.4).
- h. Invasive species may be introduced into the water column via biofouling or ballast water from vessels. However, these will not be harmful to prey species present in the water column. The introduction of non-burial protection (0.7 km²) is not predicted to affect the abundance and distribution of INIS which are already abundant and widely distributed in the English Channel. Therefore, no in combination LSE applies (HRA Report (APP-491, Rev 002) Section 8.2.4).

HRA Screening Matrix 6: River Itchen SAC (Fish)

Name of European site and designation: River Itchen SAC (Fish)																																						
EU Code: UK0012599																																						
Distance to Proposed Development: 27.5 km																																						
European site features									Likely Effects of the Proposed Development																													
<i>Effect</i>									<i>Increased SSC</i>			<i>Physical Injury</i>			<i>Invasive species</i>			<i>Pollution events</i>			<i>Noise and vibration</i>			<i>Visual Disturbance</i>			<i>EMF</i>			<i>Temperature changes</i>			<i>In combination effects</i>					
<i>Stage of Development</i>									<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
1106 Atlantic salmon (<i>Salmo salar</i>)									✓ a	✓ a	√ a	✗ b	✗ b	✗ b	✗ c	✗ c	✗ c	✓ d	✓ d	✓ d	✗ e	✗ e	✗ e	✗ f	✗ f	✗ f	✗ g			✗ h			✓ i	✓ i	✓ i			
1044 Southern damselfly (<i>Coenagrion mercurial</i>)																																						
1163 Bullhead (<i>Cottus gobio</i>)																																						
1092 White-clawed (or Atlantic stream) crayfish																																						
1096 Brook lamprey (<i>Lampetra planeri</i>)																																						
1355 Otter (<i>Lutra lutra</i>)																																						

Name of European site and designation: River Itchen SAC (Fish)									
EU Code: UK0012599									
Distance to Proposed Development: 27.5 km									
European site features	Likely Effects of the Proposed Development								
<i>Effect</i>	<i>Increased SSC</i>	<i>Physical Injury</i>	<i>Invasive species</i>	<i>Pollution events</i>	<i>Noise and vibration</i>	<i>Visual Disturbance</i>	<i>EMF</i>	<i>Temperature changes</i>	<i>In combination effects</i>
<i>3260 Water courses of plain to montane levels with the Ranunculus fluitantis and Callitriche-Batrachion vegetation</i>									

Evidence supporting conclusions:

- a. The potential increase in SSC as a result of both inshore and marine construction, operation and decommissioning activities may cause a barrier to migration, as such it is considered that LSE cannot be ruled out (HRA Report (APP-491, Rev 002) Sections 7.2.2 and 9.1.3, Tables 7.2 and 9.1).
- b. Salmon are highly mobile and able to avoid collisions with installation and maintenance vessels and infrastructure. Therefore, no LSE as a result of physical injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.2).
- c. Invasive species such as parasites or migratory fish species introduced as a result of construction, operation and decommissioning will not harm salmon given that there is no evidence to suggest that these types of species are introduced via biofouling or ballast water. Therefore, no LSE as a result of invasive species can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.2).
- d. Potential for hydrocarbon and/or chemical pollution events exists, therefore LSE cannot be ruled out (HRA Report (APP-491, Rev 002) Sections 7.2.2 and 9.1.3, Tables 7.2 and 9.1, and Integrity Matrix 9 below).
- e. Salmon are hearing generalists with potential underwater noise emissions from the construction, operation and decommissioning of the Proposed Development falling below the levels expected to produce mortality, mortal injury or recoverable injury. Therefore, no LSE as a result of noise and vibration can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.2).
- f. Salmon will be accustomed to vessels traffic and will navigate round or under installation, maintenance and decommissioning vessels. Therefore, no LSE as a result of visual disturbance can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.2).
- g. Salmon are pelagic and generally use the zone close to the sea surface for migration so will not come into contact with EMF during operation of the Proposed Development. In addition, salmon show a lack of behavioural response to EMF below 95 µT with predicted EMF for the Proposed Development being 42 µT. Therefore, no LSE as a result of EMF can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.3).
- h. Salmon are pelagic and generally use the zone close to the sea surface for migration so will not come into contact with any temperature changes during operation of the Proposed Development. Therefore, no LSE as a result of temperature changes can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.3).
- i. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on salmon with the exception of SSC and pollution events. Therefore LSE cannot be ruled out for both of these effects in combination (HRA Report (APP-491, Rev 002) Sections 8.2.2 and 9.1.3, Table 9.1 and Integrity Matrix 9 below).

HRA Screening Matrix 7: River Avon SAC (Fish)

Name of European site and designation: River Avon SAC (Fish)																																			
EU Code: UK0013016																																			
Distance to Proposed Development: 51.4 km																																			
European site features									Likely Effects of the Proposed Development																										
<i>Effect</i>									<i>Increased SSC</i>			<i>Physical Injury</i>			<i>Invasive species</i>			<i>Pollution events</i>			<i>Noise and vibration</i>			<i>Visual Disturbance</i>			<i>EMF</i>			<i>Temperature changes</i>			<i>In combination effects</i>		
<i>Stage of Development</i>									<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
1095 Sea lamprey (<i>Petromyzon marinus</i>)									✓	✓	✓	✗	✗	✗	✗	✗	✗	✓	✓	✓	✗	✗	✗				✗	✗	✗				✓	✓	✓
1106 Atlantic salmon									✓	✓	✓	✗	✗	✗	✗	✗	✗	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓
1016 Desmoulin's whorl snail (<i>Vertigo moulinsiana</i>)																																			
1096 Brook lamprey																																			
1163 Bullhead																																			
3260 Water courses of plain to montane levels with the Ranuncion fluitantis and Callitricho-Batrachion vegetation																																			

Evidence supporting conclusions:

- a. The potential increase in SSC as a result of both inshore and marine construction, operation and decommissioning activities may cause a barrier to migration, as such it is considered that LSE cannot be ruled out (HRA Report (APP-491, Rev 002) Sections 7.2.2 and 9.1.3, Tables 7.2, 7.6 and 9.1).
- b. Both salmon and sea lamprey are highly mobile and able to avoid collisions with installation and maintenance vessels and infrastructure. Therefore, no LSE as a result of physical injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2 and 7.6).
- c. Invasive species such as parasites or migratory fish species introduced as a result of construction, operation and decommissioning will not harm salmon or sea lamprey given that there is no evidence to suggest that these types of species are introduced via biofouling or ballast water. Therefore, no LSE as a result of invasive species can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.2 and 7.6).
- d. Potential for hydrocarbon and/or chemical pollution events exists, therefore LSE cannot be ruled out (HRA Report (APP-491, Rev 002) Sections 7.2.2 and 9.1.3, Tables 7.2, 7.6 and 9.1, and Integrity Matrix 10 below).
- e. Salmon and sea lamprey are hearing generalists with potential underwater noise emissions from the construction, operation and decommissioning of the Proposed Development falling below the levels expected to produce mortality, mortal injury or recoverable injury. Therefore, no LSE as a result of noise and vibration can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2 and 7.6).
- f. Salmon and sea lamprey will be accustomed to vessels traffic and will navigate round or under installation, maintenance and decommissioning vessels. Therefore, no LSE as a result of visual disturbance can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2 and 7.6).
- g. Salmon are pelagic and generally use the zone close to the sea surface for migration so will not come into contact with EMF during operation of the Proposed Development. In addition, salmon show a lack of behavioural response to EMF below 95 µT with predicted EMF for the Proposed Development being 42 µT. Sea lamprey use both the pelagic and benthic zones for migration and

may therefore come into contact with weak EMF from the Proposed Development however no responses to electromagnetic fields have been recorded for this species. Therefore, no LSE as a result of EMF can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.3 and 7.7).

- h. Salmon are pelagic and generally use the zone close to the sea surface for migration so will not come into contact with any temperature changes during operation of the Proposed Development. Sea lamprey are highly mobile and not dependent on the seabed and will not come into contact with any temperature changes at seabed surface. Therefore, no LSE as a result of temperature changes can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.3).
- i. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on salmon and sea lamprey with the exception of SSC and pollution events. Therefore, LSE cannot be ruled out for both of these effects in combination (HRA Report (APP-491, Rev 002) Sections 8.2.2 and 9.1.3, Table 9.1 and Integrity Matrix 10 below).

HRA Screening Matrix 8: River Axe SAC (Fish)

Name of European site and designation: River Axe SAC (Fish)																																								
EU Code: UK0030248																																								
Distance to Proposed Development: 168 km																																								
European site features											Likely Effects of the Proposed Development																													
<i>Effect</i>											<i>Increased SSC</i>			<i>Physical Injury</i>			<i>Invasive species</i>			<i>Pollution events</i>			<i>Noise and vibration</i>			<i>Visual Disturbance</i>			<i>EMF</i>			<i>Temperature changes</i>			<i>In combination effects</i>					
<i>Stage of Development</i>											<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
<i>1095 Sea lamprey</i>											x	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	xe					x			x		✓	✓	✓h			
<i>1096 Brook lamprey</i>																																								
<i>1163 Bullhead</i>																																								
<i>3260 Water courses of plain to montane levels with the Ranuncion fluitantis and Callitricho-Batrachion vegetation</i>																																								

Evidence supporting conclusions:

- a. Sea lamprey (and transformers) are tolerant of naturally high levels of SSC given their riverine migration and are able to swim through of navigate round areas of elevated SSC in the marine environment. Therefore, no LSE as a result of increased SSC during construction, operation and decommissioning can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.6).
- b. Sea lamprey are highly mobile and able to avoid collisions with installation and maintenance vessels and infrastructure. Therefore, no LSE as a result of physical injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.6).
- c. Invasive species such as parasites or migratory fish species introduced as a result of construction, operation and decommissioning will not harm sea lamprey given that there is no evidence to suggest that these types of species are introduced via biofouling or ballast water. Therefore, no LSE as a result of invasive species can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.6).
- d. Potential for hydrocarbon and/or chemical pollution events exists, therefore LSE cannot be ruled out (HRA Report (APP-491, Rev 002) Sections 7.2.2 and 9.1.3, Tables 7.6 and 9.1 and Integrity Matrix 11).

- e. Sea lamprey are hearing generalists with potential underwater noise emissions from the construction, operation and decommissioning of the Proposed Development falling below the levels expected to produce mortality, mortal injury or recoverable injury. Therefore, no LSE as a result of noise and vibration can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.6).
- f. Sea lamprey use both the pelagic and benthic zones for migration and may therefore come into contact with weak EMF from the Proposed Development however no responses to electromagnetic fields have been recorded for this species. Therefore, no LSE as a result of EMF can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.7).
- g. Sea lamprey are highly mobile and not dependent on the seabed and will not come into contact with any temperature changes at seabed surface. Therefore, no LSE as a result of temperature changes can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.6).
- h. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on sea lamprey with the exception of pollution events. Therefore, LSE cannot be ruled out for this effect in combination (HRA Report (APP-491, Rev 002) Sections 8.2.2 and 9.1.3, Table 9.1).

HRA Screening Matrix 9: Plymouth Sound and Estuaries SAC (Fish)

Name of European site and designation: Plymouth Sound and Estuaries SAC (Fish)																														
EU Code: UK0030248																														
Distance to Proposed Development: 229 km																														
European site features			Likely Effects of the Proposed Development																											
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects					
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
1102 Allis shad (<i>Alosa alosa</i>)	x	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	xe	x	x	xf		x			x					✓	✓	✓i
1110 Sandbanks which are slightly covered by sea water all the time																														
1130 Estuaries																														
1160 Large shallow inlets and bays																														
1170 Reefs																														
1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)																														
1140 Mudflats and sandflats not covered by seawater at low tide																														
1441 Shore dock																														

Evidence supporting conclusions:

- a. Allis shad are tolerant of naturally high levels of SSC given their riverine migration and are able to swim through or navigate round areas of elevated SSC in the marine environment. Therefore, no LSE as a result of increased SSC during construction, operation and decommissioning can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.4).
- b. Allis shad are highly mobile and able to avoid collisions with installation and maintenance vessels and infrastructure. Therefore, no LSE as a result of physical injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.4).
- c. Invasive species such as parasites or migratory fish species introduced as a result of construction, operation and decommissioning will not harm allis shad given that there is no evidence to suggest that these types of species are introduced via biofouling or ballast water. Therefore, no LSE as a result of invasive species can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.4).

- d. Potential for hydrocarbon and/or chemical pollution events exists, therefore LSE cannot be ruled out (HRA Report (APP-491, Rev 002) Sections 7.2.2 and 9.1.3, Tables 7.4 and 9.1, and Integrity Matrix 12 below).
- e. Allis shad are hearing specialists due to the coupling of the ear with the swim bladder. Although TTS may occur if an individual is within 160m of trenching equipment it is considered as this species is highly mobile and generally pelagic that they will move away before an impact occurs. Therefore, no LSE as a result of noise and vibration can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.4).
- f. Allis shad will be accustomed to vessels traffic and will navigate round or under installation, maintenance and decommissioning vessels. Therefore, no LSE as a result of visual disturbance can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.4).
- g. Allis shad are generally pelagic so will not come into contact with EMF during operation of the Proposed Development. In addition, shad do not possess ampullary organs, instead relying on sight or sensory organs to locate prey so are not susceptible to EMF. Therefore, no LSE as a result of EMF can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.5).
- h. Allis shad are generally pelagic so will not come into contact with any temperature changes during operation of the Proposed Development. Therefore, no LSE as a result of temperature changes can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.5).
- i. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on allis shad with the exception of pollution events. Therefore, LSE cannot be ruled out for this effect in combination (HRA Report (APP-491, Rev 002) Sections 8.2.2 and 9.1.3, Table 9.1 and Integrity Matrix 12 below).

HRA Screening Matrix 10A: Littoral Seino-Marin SPA (Marine Ornithology)

Name of European Site: Littoral Seino-Marin SPA (Marine Ornithology)																		
Distance to Proposed Development: 30.6 km																		
European site feature	Likely Effects of the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Greylag goose (W)																		
White-fronted goose (W)																		
Shelduck (W)																		
Eider (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Velvet scoter (W)																		
Common scoter (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Red-breasted merganser (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Red-throated diver (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Black-throated diver (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Great northern diver (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Storm petrel (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Leach's storm petrel (P)																		
Fulmar (B)	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd	Xe	Xe	Xe	√f	√f	√f	√g	√g	√g
Manx shearwater (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Balearic shearwater (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Great crested grebe (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Slavonian grebe (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Black-necked grebe (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Spoonbill (W)																		
Little egret (W)																		
Gannet (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa

Name of European Site: Littoral Seino-Marin SPA (Marine Ornithology)																		
Distance to Proposed Development: 30.6 km																		
European site feature	Likely Effects of the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Shag (B)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Cormorant (B)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Honey buzzard (W)																		
Hen harrier (W)																		
Avocet (W)																		
Purple sandpiper (W)																		
Common sandpiper (W)																		
Kittiwake (B)	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd	Xe	Xe	Xe	√f	√f	√f	√g	√g	√g
Sabine's gull (P)																		
Little gull (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Mediterranean gull (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Great black-backed gull (B)	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd	Xe	Xe	Xe	√f	√f	√f	√g	√g	√g
Herring gull (B)	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd	Xe	Xe	Xe	√f	√f	√f	√g	√g	√g
Lesser black-backed gull (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Gull-billed tern (P)																		
Sandwich tern (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Little tern (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Common tern (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Arctic tern (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Great skua (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Pomarine skua (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Arctic skua (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Guillemot (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Razorbill (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Short-eared owl (W)																		
Merlin (W)																		
Peregrine (B)																		
Woodlark (W)																		

Evidence supporting conclusions:

- a. There is no pathway for marine works to impact these features due to distance (Thaxter *et al.* 2012) (HRA Report (APP-491, Rev 002) Section 6.2.5, Table 6.6).
- b. Given that these features are not considered to be vulnerable to disturbance from vessel traffic and associated activities, the potential for an effect from displacement is considered to be negligible across all development phases. Therefore, no LSE applies to disturbance & displacement for these features (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- c. Change in prey availability and behaviour resulting from marine works across all development phases has not been identified as likely to occur at a scale as to affect these features. Given the short term and temporary nature of any effect and the assessment of fish and benthic ecology, the potential for an effect is considered negligible. Therefore, no LSE applies to indirect effects (HRA Report (APP-491, Rev 002) Section 7.2.4 Table 7.9).

- d. Structures or devices which have the potential to pose an above water collision risk to these features will not be introduced during any development phase. Surface feeding species are not considered to be vulnerable to below water collisions. The potential for an effect is therefore considered negligible and therefore no LSE applies to collision (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- e. There is no pathway for marine works to introduce invasive non-indigenous predators (e.g. mink) to breeding colonies for these features and therefore no LSE applies to INIS (HRA Report (APP-491, Rev 002) Section 7.2.4, Table 7.9).
- f. Unplanned oil or chemical spillages from vessels may occur during all development phases. Spills have the potential to directly affect these features when utilising the sea surface e.g. through direct oiling resulting in mortality. Therefore, LSE applies to accidental spills. (HRA Report (APP-491, Rev 002) Section 7.2.4 and 9.1.5, Tables 7.9 and 9.1 and Integrity Matrix 6A)
- g. Unplanned disposal of industrial or user plastic during all development phases has the potential to directly affect these features when utilising the sea surface e.g. through ingestion or entanglement resulting in mortality. Therefore, LSE applies to accidental spills (HRA Report (APP-491, Rev 002) Section 7.2.4 and 9.1.5, Tables 7.9 and 9.1 and Integrity Matrix 6A).

HRA Screening Matrix 10B: Littoral Seino-Marin SPA (Marine Ornithology – In Combination)

Name of European Site: Littoral Seino-Marin SPA (Marine Ornithology)																		
Distance to Proposed Development: 30.6 km																		
European site feature	Likely Effects of the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Greylag goose (W)																		
White-fronted goose (W)																		
Shelduck (W)																		
Eider (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Velvet scoter (W)																		
Common scoter (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Red-breasted merganser (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Red-throated diver (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Black-throated diver (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Great northern diver (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Storm petrel (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Leach's storm petrel (P)																		
Fulmar (B)	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd	Xe	Xe	Xe	√f	√f	√f	√f	√f	√f
Manx shearwater (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Balearic shearwater (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Great crested grebe (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Slavonian grebe (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Black-necked grebe (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Spoonbill (W)																		
Little egret (W)																		
Gannet (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Shag (B)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Cormorant (B)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Honey buzzard (W)																		
Hen harrier (W)																		

Name of European Site: Littoral Seino-Marin SPA (Marine Ornithology)																		
Distance to Proposed Development: 30.6 km																		
European site feature	Likely Effects of the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Avocet (W)																		
Purple sandpiper (W)																		
Common sandpiper (W)																		
Kittiwake (B)	x b	x b	x b	x c	x c	x c	x d	x d	x d	x e	x e	x e	✓ f	✓ f	✓ f	✓ f	✓ f	✓ f
Sabine's gull (P)																		
Little gull (P)	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a
Mediterranean gull (W)	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a
Great black-backed gull (B)	x b	x b	x b	x c	x c	x c	x d	x d	x d	x e	x e	x e	✓ f	✓ f	✓ f	✓ f	✓ f	✓ f
Herring gull (B)	x b	x b	x b	x c	x c	x c	x d	x d	x d	x e	x e	x e	✓ f	✓ f	✓ f	✓ f	✓ f	✓ f
Lesser black-backed gull (W)	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a
Gull-billed tern (P)																		
Sandwich tern (P)	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a
Little tern (P)	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a
Common tern (P)	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a
Arctic tern (P)	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a
Great skua (W)	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a
Pomarine skua (P)	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a
Arctic skua (P)	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a
Guillemot (W)	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a
Razorbill (W)	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a	x a
Short-eared owl (W)																		
Merlin (W)																		
Peregrine (B)																		
Woodlark (W)																		

Evidence supporting conclusions:

- a. There is no pathway for marine works to impact these features due to distance (Thaxter *et al.* 2012) (HRA Report (APP-491, Rev 002) Section 6.2.5, Table 6.6).
- b. Given that these features are not considered to be vulnerable to disturbance from vessel traffic and associated activities, the potential for an effect from displacement is considered to be negligible across all development phases. Therefore, no LSE applies to disturbance & displacement for these features (HRA Report (APP-491, Rev 002) Section 8.2.4).
- c. Change in prey availability and behaviour resulting from marine works across all development phases has not been identified as likely to occur at a scale as to affect these features. Given the short term and temporary nature of any effect and the assessment of fish and benthic ecology, the potential for an effect is considered negligible. Therefore, no LSE applies to indirect effects (HRA Report (APP-491, Rev 002) Section 8.2.4).
- d. Structures or devices which have the potential to pose an above water collision risk to these features will not be introduced during any development phase. Surface feeding species are not considered to be vulnerable to below water collisions. The potential for an effect is therefore considered negligible and therefore no LSE applies to collision (HRA Report (APP-491, Rev 002) Section 8.2.4).

- e. There is no pathway for marine works to introduce invasive non-indigenous predators (e.g. mink) to breeding colonies for these features and therefore no LSE applies to INIS (HRA Report (APP-491, Rev 002) Section 8.2.4).
- f. LSE applies to the Proposed Development alone. (HRA Report (APP-491, Rev 002) Sections 8.2.4 and 9.1.5, Table 9.1). Therefore, potential in combination adverse effects on site integrity are considered in the Stage 2 Integrity matrices below (See HRA Integrity Matrix 6A and 6B).

HRA Screening Matrix 11: Dungeness, Romney Marsh and Rye Bay SPA (Pre-screened out for Marine Ornithology)

Name of European Site: Dungeness, Romney Marsh and Rye Bay SPA (Marine Ornithology)																		
Distance to Proposed Development: 61.0 km																		
European site feature	Likely Effects of the Proposed Development (Alone and In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Bewick's swan (W)																		
Shoveler (W)																		
Bittern (W)																		
Marsh harrier (W)																		
Hen harrier (W)																		
Avocet (B)																		
Golden plover (W)																		
Ruff (W)																		
Mediterranean gull (B)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Sandwich tern (B)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Little tern (B)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Common tern (B)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Aquatic warbler (W)																		
Supporting habitat (water column)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa

Evidence supporting conclusions:

- a. There is no pathway for marine works to impact this European site due to distance. It is situated outside the maximum foraging range of all breeding ornithological features (common tern 30 km; Sandwich tern 54 km; Mediterranean gull 20 km; Thaxter *et al.* 2012) (HRA Report (APP-491, Rev 002) Section 6.2.5, Table 6.6).

HRA Screening Matrix 12: Poole Harbour SPA (Pre-screened out for Marine Ornithology)

Name of European Site: Poole Harbour SPA (Marine Ornithology)																		
Distance to Proposed Development: 63.8 km																		
European site feature	Likely Effects of the Proposed Development (Alone and In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Bewick's swan (W)																		
Shoveler (W)																		
Bittern (W)																		
Marsh harrier (W)																		
Hen harrier (W)																		
Avocet (B)																		
Golden plover (W)																		
Ruff (W)																		
Mediterranean gull (B)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Sandwich tern (B)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Common tern (B)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Aquatic warbler (W)																		
Supporting habitat (water column)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa

Evidence supporting conclusions:

- a. There is no pathway for marine works to impact this European site due to distance. It is situated outside the mean-maximum foraging range of all breeding ornithological features (common tern 30 km; Sandwich tern 54 km; Mediterranean gull 20 km; Thaxter *et al.* 2012) (HRA Report (APP-491, Rev 002) Section 6.2.5, Table 6.6).

HRA Screening Matrix 13: Estuaire et Marais de la Basse Seine SPA (Pre-screened out for Marine Ornithology)

Name of European Site: Estuaire et Marais de la Basse Seine SPA (Marine Ornithology)																		
Distance to Proposed Development: 86.9 km																		
European site feature	Likely Effects of the Proposed Development (Alone and In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Brent goose (W)																		
Greylag goose (W)																		
White-fronted goose (W)																		
Shelduck (B)																		
Garganey (B)																		
Shoveler (W)																		

Name of European Site: Estuaire et Marais de la Basse Seine SPA (Marine Ornithology)																		
Distance to Proposed Development: 86.9 km																		
European site feature	Likely Effects of the Proposed Development (Alone and In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Gadwall (W)																		
Wigeon (W)																		
Pintail (B)																		
Teal (B)																		
Red-crested pochard (W)																		
Pochard (W)																		
Tufted duck (W)																		
Scaup (P)																		
Eider (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Velvet scoter (W)																		
Common scoter (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Goldeneye (B)																		
Smew (W)																		
Goosander (W)																		
Red-breasted merganser (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Red-throated diver (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Black-throated diver (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Great northern diver (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Red-necked grebe (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Great crested grebe (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Slavonian grebe (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Black stork (W)																		
White stork (B)																		
Spoonbill (W)																		
Bittern (B)																		
Little bittern (B)																		
Grey heron(W)																		
Purple heron (W)																		
Little egret (W)																		
Cormorant (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Osprey (W)																		
Honey buzzard (B)																		
Booted eagle (W)																		
Marsh harrier (B)																		
Hen harrier (B)																		
Montagu's harrier (W)																		
Red kite (W)																		

Name of European Site: Estuaire et Marais de la Basse Seine SPA (Marine Ornithology)																		
Distance to Proposed Development: 86.9 km																		
European site feature	Likely Effects of the Proposed Development (Alone and In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Black kite (W)																		
Corncrake (B)																		
Spotted crane (B)																		
Crane (W)																		
Oystercatcher (B)																		
Black-winged stilt (B)																		
Avocet (B)																		
Lapwing (B)																		
Golden plover (W)																		
Grey plover (W)																		
Ringed plover (B)																		
Little ringed plover (B)																		
Kentish plover (W)																		
Whimbrel (W)																		
Curlew (B)																		
Bar-tailed godwit (W)																		
Black-tailed godwit (B)																		
Turnstone (W)																		
Knot (W)																		
Ruff (W)																		
Curlew sandpiper (W)																		
Temmink's stint (W)																		
Sanderling (W)																		
Dunlin (B)																		
Little stint (W)																		
Snipe (B)																		
Common sandpiper (W)																		
Green sandpiper (W)																		
Redshank (B)																		
Wood sandpiper (W)																		
Spotted redshank (W)																		
Greenshank (W)																		
Little gull (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Mediterranean gull (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Gull-billed tern (P)																		
Caspian tern (P)																		
Sandwich tern (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa

Name of European Site: Estuaire et Marais de la Basse Seine SPA (Marine Ornithology)																		
Distance to Proposed Development: 86.9 km																		
European site feature	Likely Effects of the Proposed Development (Alone and In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Common tern (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Arctic tern (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Whiskered tern (P)																		
Black tern (P)																		
Great skua (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Arctic skua (P)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Guillemot (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Razorbill (W)	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa
Little owl (W)																		
Long-eared owl (B)																		
Short-eared owl (B)																		
Nightjar (B)																		
Kingfisher (B)																		
Merlin (W)																		
Peregrine (B)																		
Red-backed shrike (B)																		
Bearded tit (B)																		
Woodlark (W)																		
Cetti's warbler (B)																		
Aquatic warbler (W)																		
Reed warbler (B)																		
Marsh warbler (B)																		
Grasshopper warbler (B)																		
Bluethroat (B)																		
Redstart (B)																		
Whinchat (B)																		
Stonechat (B)																		
Wheatear (W)																		
Tawny pipit (W)																		
Siskin (W)																		
Ortolan bunting																		
Reed bunting (B)																		

Evidence supporting conclusions:

- a. There is no pathway for marine works to impact this European site due to distance (HRA Report (APP-491, Rev 002) Section 6.2.5, Table 6.6).

HRA Screening Matrix 14A: Estuaires et Littoral Picards (Baies de Somme et d'Authie) SAC (Fish)

Name of European site and designation: Estuaries et Littoral Picards (Baie de Somme et d'Authie) SAC (fish)																														
EU Code: FR2200346																														
Distance to Proposed Development: 84.6 km																														
European site features				Likely Effects of the Proposed Development																										
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects					
	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			
Stage of Development	x	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	xe															
1099 River lamprey	a	a	a	b	b	b	c	c	c	d	d	d	e	e								xf						h	h	h
1166 Crested newt																														
1614 Creeping marshwort (<i>Apium repens</i>)																														
1903 Fen Orchid (<i>Liparis loeselii</i>)																														
6199 Jersey Tigar																														
1042 Yellow-spotted Whiteface (<i>Leucorhina pectotalis</i>)																														
1014 Narrow-mouthed whorl snail (<i>Vertigo angustior</i>)																														
1016 Desmoulin's whorl snail																														
1364 Grey seal																														
1321 Geoffroy's bat																														
1365 Common seal																														
1351 Common Porpoise																														
1349 Bottle-nosed Dolphin																														
1110 Sandbanks which are slightly covered by seawater all the time																														
1130 Estuaries																														
1140 Mudflats and sandflats not covered by seawater at low tide																														
1150 Coastal lagoons																														
1170 Reefs																														
1210 Annual vegetation of drift lines																														
1220 Perennial vegetation of stony banks																														
1230 Vegetated sea cliffs of the Atlantic and Baltic coasts																														
1310 Salicornia and other annuals colonizing mud and sand																														
1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)																														
1420 Mediterranean and thermos-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)																														

Name of European site and designation: Estuaries et Littoral Picards (Baie de Somme et d'Authie) SAC (fish)																													
EU Code: FR2200346																													
Distance to Proposed Development: 84.6 km																													
European site features										Likely Effects of the Proposed Development																			
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects				
	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		
<i>Stage of Development</i>																													
<i>2130 Embryonic shifting dunes</i>																													
<i>2120 Shifting dunes along the shoreline with Ammophila arenaria ('white dunes')</i>																													
<i>2130 Fixed coastal dunes with herbaceous vegetation ('grey dunes')</i>																													
<i>2160 Dunes with Hippophae rhamnoides</i>																													
<i>2170 Dunes with Salix repens ssp argentea (Salicion arenariae)</i>																													
<i>2180 Wooded dunes of the Atlantic, Continental and Boreal region</i>																													
<i>2190 Humid dune slacks</i>																													
<i>3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)</i>																													
<i>3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp</i>																													
<i>3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition – type vegetation</i>																													
<i>3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation</i>																													
<i>6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)</i>																													
<i>6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels</i>																													
<i>6510 Lowland hay meadows (Alopecurus prtensis, Sanguisorba officinalis)</i>																													
<i>7230 Alkine fens</i>																													
<i>91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)</i>																													

Evidence supporting conclusions:

- a. River lamprey (and transformers) are tolerant of naturally high levels of SSC given their riverine migration and are able to swim through or navigate round areas of elevated SSC in the marine environment. Therefore, no LSE as a result of increased SSC during construction, operation and decommissioning can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.6).
- b. River lamprey are highly mobile and able to avoid collisions with installation and maintenance vessels and infrastructure. Therefore, no LSE as a result of physical injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.6).

- c. Invasive species such as parasites or migratory fish species introduced as a result of construction, operation and decommissioning will not harm river lamprey given that there is no evidence to suggest that these types of species are introduced via biofouling or ballast water. Therefore, no LSE as a result of invasive species can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.6).
- d. Potential for hydrocarbon and/or chemical pollution events exists, therefore LSE cannot be ruled out (HRA Report (APP-491, Rev 002) Sections 7.2.2 and 9.1.3, Tables 7.6 and 9.1, and Integrity Matrix 14 below).
- e. River lamprey are hearing generalists with potential underwater noise emissions from the construction, operation and decommissioning of the Proposed Development falling below the levels expected to produce mortality, mortal injury or recoverable injury. Therefore, no LSE as a result of noise and vibration can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.6).
- f. River lamprey use both the pelagic and benthic zones for migration and may therefore come into contact with weak EMF from the Proposed Development however no responses to electromagnetic fields have been recorded for this species. Therefore, no LSE as a result of EMF can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.7).
- g. River lamprey are highly mobile and not dependent on the seabed and will not come into contact with any temperature changes at seabed surface. Therefore, no LSE as a result of temperature changes can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.6).
- h. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on river lamprey with the exception of pollution events. Therefore, LSE cannot be ruled out for this effect in combination (HRA Report (APP-491, Rev 002) Sections 8.2.2 and 9.1.3, Table 9.1 and Integrity Matrix 13 below).

HRA Screening Matrix 14B: Estuaires et littoral picards (baies de Somme et d'Authie) SAC (Marine Mammals)

Name of European site and designation: Estuaires et littoral picards (baies de Somme et d'Authie) SAC (Marine Mammals)																		
EU Code: FR2200346																		
Distance to Proposed Development: 87 km																		
European site features [†]	Likely Effects of the Proposed Development																	
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
1349 Bottlenose dolphin	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	x _d	x _d	x _d	√ _e	√ _e	√ _e	√ _f	√ _f	√ _f
1351 Harbour porpoise	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	x _d	x _d	x _d	√ _e	√ _e	√ _e	√ _f	√ _f	√ _f
1364 Grey seal	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	x _d	x _d	x _d	√ _e	√ _e	√ _e	√ _f	√ _f	√ _f
1365 Harbour seal	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	x _d	x _d	x _d	√ _e	√ _e	√ _e	√ _f	√ _f	√ _f
1614 Apium repens																		
6199 Euplagia quadripunctaria																		
1099 Lampetra fluviatilis																		
1042 Leucorhinia pectoralis																		
1903 Liparis loeselii																		
1321 Myotis emarginatus																		
1166 Triturus cristatus																		
1014 Vertigo angustior																		
1016 Vertigo moulinsiana																		
1110 Sandbanks which are slightly covered by sea water all the time																		
1130 Estuaries																		
1140 Mudflats and sandflats not covered by seawater at low tide																		
1150 Coastal lagoons																		
1170 Reefs																		

[†] As per <https://eunis.eea.europa.eu/sites/FR2200346> [accessed 11/06/2019]

Name of European site and designation: Estuaires et littoral picards (baies de Somme et d'Authie) SAC (Marine Mammals)																		
EU Code: FR2200346																		
Distance to Proposed Development: 87 km																		
European site features [†]	Likely Effects of the Proposed Development																	
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development																		
1210 Annual vegetation of drift lines																		
1220 Perennial vegetation of stony banks																		
1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts																		
1310 Salicornia and other annuals colonizing mud and sand																		
1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)																		
1420 Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)																		
2110 Embryonic shifting dunes																		
2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")																		
2130 Fixed coastal dunes with herbaceous vegetation ("grey dunes")																		
2160 Dunes with <i>Hippophaë rhamnoides</i>																		
2170 Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>)																		
2180 Wooded dunes of the Atlantic, Continental and Boreal region																		
2190 Humid dune slacks																		
3110 Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)																		
3140 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.																		
3150 Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> - type vegetation																		
3260 Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation																		
6410 <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)																		
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels																		
6510 Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)																		
7230 Alkaline fens																		
91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)																		

Evidence supporting conclusions:

- a. Given the geophysical survey and positioning equipment likely to be used, and the activities which have been proposed, there is negligible potential for the sound produced to induce the onset of auditory injury (PTS). Therefore, no LSE as a result of auditory injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- b. Although there is potential for disturbance of a very small number of individuals as a result of increased anthropogenic noise from the geophysical survey and positioning equipment likely to be used, any effects are likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. Disturbance ranges as a result of increased anthropogenic noise from the activities and vessels proposed are likely to be small therefore there is negligible potential for disturbance; furthermore, any effects are likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. Any changes to swimming behaviour as a result of the presence of EMF (operational phase only) are likely to be corrected within a few metres and therefore have minimal effect. The potential for disturbance of seals hauled out within this SAC is considered to be nil due to the distance between the Proposed Development and the SAC (87 km). Therefore, no LSE as a result of disturbance can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- c. Given the number, type and behaviour of vessels required, and the fact that the species under consideration are small and agile, the risk of collision is considered to be negligible. Therefore, no LSE as a result of collision can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- d. Indirect effects such as changes in suspended sediment levels as a result of trenching and dredging have the potential to affect prey availability/quality and alter marine mammal foraging behaviour/success. However, because marine mammals range widely and forage in a variety of habitats using a variety of cues, any short-term local level changes in prey availability/quality will not result in a reduction in either fitness or breeding success. Therefore, no LSE as a result of indirect effects can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- e. Pollution (unplanned spills/disposal of litter) may affect marine mammal species directly (if water quality is affected as a result of an unplanned spill, litter is ingested or animals become entangled in marine debris) and/or indirectly (if contaminated prey items are ingested). Therefore LSE applies to pollution (HRA Report (APP-491, Rev 002) Sections 7.2.3 and 9.1.4, Table 7.8 and 9.1, and Integrity Matrix 17 below).
- f. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on either bottlenose dolphin, harbour porpoise, grey seal or harbour seal which are qualifying features of the Estuaires et littoral picards (baies de Somme et d'Authie) SAC with the exception of pollution. This is because there is negligible potential for the sound produced by the Proposed Development to induce the onset of auditory injury (PTS), any disturbance is likely to be temporary and reversible with suitable alternative local habitat being available in the meantime, the risk of collision with vessels is considered to be negligible, and short term local level changes in prey availability/quality as a result of indirect effects will not result in a reduction in either fitness or breeding success. Therefore, no LSE as a result of the contribution of the Proposed Development to any potential in combination effects (with the exception of pollution) on the marine mammal features of the Estuaires et littoral picards (baies de Somme et d'Authie) SAC can be concluded. However, LSE applies in relation to pollution therefore in combination effects for pollution have been taken through to AA (HRA Report (APP-491, Rev 002) Section 8.2.3 and 9.1.4, Table 9.1 and Integrity Matrix 17 below).

HRA Screening Matrix 15A: Baie de Canche et Couloir des trois Estuaires SAC (Fish)

Name of European site and designation: Baie de Canche et Couloir des trois Estuaires SAC																															
EU Code: FR3102005																															
Distance to Proposed Development: 86.5 km																															
European site features					Likely Effects of the Proposed Development																										
<i>Effect</i>					<i>Increased SSC</i>			<i>Physical Injury</i>			<i>Invasive species</i>			<i>Pollution events</i>			<i>Noise and vibration</i>			<i>Visual Disturbance</i>			<i>EMF</i>			<i>Temperature changes</i>			<i>In combination effects</i>		
<i>Stage of Development</i>					<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
1102 Allis shad					x	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	xe	xf	xf	xf		x			x		✓	✓	✓i
1095 Sea lamprey					x	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	xe					x			x		✓	✓	✓i
1099 River lamprey					x	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	xe					x			x		✓	✓	✓i
					a	a	a	b	b	b	c	c	c	d	d	d	e	e						g			h		i	i	

Name of European site and designation: Baie de Canche et Couloir des trois Estuaires SAC																														
EU Code: FR3102005																														
Distance to Proposed Development: 86.5 km																														
European site features			Likely Effects of the Proposed Development																											
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects					
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
1106 Atlantic salmon	x	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	xe	xf	xf	xf		x			x		✓	✓	✓i			
1351 Harbour porpoise																														
1364 Grey seal																														
1365 Harbour seal																														
1351 Common Porpoise																														
1110 Sandbanks which are slightly covered by sea water all the time																														
1130 Estuaries																														
1140 Mudflats and sandflats not covered by seawater at low tide																														
1210 Annual vegetation of drift lines																														
1310 Salicornia and other annuals colonising mud and sand																														
1330 Atlantic salt meadows																														

Evidence supporting conclusions:

- a. Allis shad, sea lamprey (and transformers), river lamprey (and transformers) and salmon (and smolts) are tolerant of naturally high levels of SSC given their riverine migration and are able to swim through or navigate round areas of elevated SSC in the marine environment. Therefore, no LSE as a result of increased SSC during construction, operation and decommissioning can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2, 7.4 and 7.6).
- b. Allis shad, sea lamprey, river lamprey and salmon are highly mobile and able to avoid collisions with installation and maintenance vessels and infrastructure. Therefore, no LSE as a result of physical injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2, 7.4 and 7.6).
- c. Invasive species such as parasites or migratory fish species introduced as a result of construction, operation and decommissioning will not harm allis shad, sea lamprey, river lamprey and salmon given that there is no evidence to suggest that these types of species are introduced via biofouling or ballast water. Therefore, no LSE as a result of invasive species can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2 and 7.4 and 7.6).
- d. Potential for hydrocarbon and/or chemical pollution events exists, therefore LSE cannot be ruled out (HRA Report (APP-491, Rev 002) Section 7.2.2 and 9.1.3, Tables 7.2, 7.4, 7.6 and 9.1, and Integrity Matrix 14 below).
- e. Allis shad are hearing specialists due to the coupling of the ear with the swim bladder. Although TTS may occur if an individual is within 160m of trenching equipment it is considered as this species is highly mobile and generally pelagic that they will move away before an impact occurs. River lamprey, sea lamprey and salmon are hearing generalists with potential underwater noise emissions from the construction, operation and decommissioning of the Proposed Development falling below the levels expected to produce mortality, mortal injury or recoverable injury. Therefore, no LSE as a result of noise and vibration can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2, 7.4 and 7.6).
- f. Allis shad and salmon will be accustomed to vessels traffic and will navigate round or under installation, maintenance and decommissioning vessels. Therefore, no LSE as a result of visual disturbance can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2, 7.4 and 7.6).
- g. Salmon and allis shad are pelagic and generally use the zone close to the sea surface for migration so will not to come into contact with EMF during operation of the Proposed Development. In addition, salmon show a lack of behavioural response to EMF and shad do not poses ampullary organs instead relying on sight or sensory organs to locate prey. River and sea lamprey use both

the pelagic and benthic zones for migration and may therefore come into contact with weak EMF from the Proposed Development however no responses to electromagnetic fields have been recorded for this species. Therefore, no LSE as a result of EMF can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.3, 7.5 and 7.7).

- h. Allis shad and salmon are pelagic and generally use the zone close to the sea surface for migration so will not come into contact with any temperature changes during operation of the Proposed Development. Sea lamprey and river lamprey are highly mobile and not dependent on the seabed and will not come into contact with any temperature changes at seabed surface. Therefore, no LSE as a result of temperature changes can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.3, 7.5, 7.6 and 7.7).
- i. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on allis shad, sea lamprey, river lamprey and salmon with the exception of pollution events. Therefore, LSE cannot be ruled out for this effect in combination (HRA Report (APP-491, Rev 002) Section 8.2.2, Table 9.1 and Integrity Matrix 14 below).

HRA Screening Matrix 15B: Baie de Canche et couloir des trois estuaires SAC (Marine Mammals)

Name of European site and designation: Baie de Canche et couloir des trois estuaires SAC (Marine Mammals)																		
EU Code: FR3102005																		
Distance to Proposed Development: 85 km																		
European site features [‡]	Likely Effects of the Proposed Development																	
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
1351 Harbour porpoise	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd	√e	√e	√e	√f	√f	√f
1364 Grey seal	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd	√e	√e	√e	√f	√f	√f
1365 Harbour seal	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd	√e	√e	√e	√f	√f	√f
1095 Sea lamprey																		
1099 River lamprey																		
1102 Allis shad																		
1106 Atlantic salmon																		
1110 Sandbanks which are slightly covered by sea water all the time																		
1130 Estuaries																		
1140 Mudflats and sandflats not covered by seawater at low tide																		
1210 Annual vegetation of drift lines																		
1310 Salicornia and other annuals colonising mud and sand																		
1330 Atlantic salt meadows																		

Evidence supporting conclusions:

- a. Given the geophysical survey and positioning equipment likely to be used, and the activities which have been proposed, there is negligible potential for the sound produced to induce the onset of auditory injury (PTS). Therefore, no LSE as a result of auditory injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- b. Although there is potential for disturbance of a very small number of individuals as a result of increased anthropogenic noise from the geophysical survey and positioning equipment likely to be used, any effects are likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. Disturbance ranges as a result of increased anthropogenic noise

[‡] As per <https://inpn.mnhn.fr/docs/natura2000/fsdpdf/FR3102005.pdf> [accessed 05/06/2019]

from the activities and vessels proposed are likely to be small therefore there is negligible potential for disturbance; furthermore, any effects are likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. Any changes to swimming behaviour as a result of the presence of EMF (operational phase only) are likely to be corrected within a few metres and therefore have minimal effect. The potential for disturbance of seals hauled out within this SAC is considered to be nil due to the distance between the Proposed Development and the SAC (85 km). Therefore, no LSE as a result of disturbance can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).

- c. Given the number, type and behaviour of vessels required, and the fact that the species under consideration are small and agile, the risk of collision is considered to be negligible. Therefore, no LSE as a result of collision can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- d. Indirect effects such as changes in suspended sediment levels as a result of trenching and dredging have the potential to affect prey availability/quality and alter marine mammal foraging behaviour/success. However, because marine mammals range widely and forage in a variety of habitats using a variety of cues, any short-term local level changes in prey availability/quality will not result in a reduction in either fitness or breeding success. Therefore, no LSE as a result of indirect effects can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- e. Pollution (unplanned spills/disposal of litter) may affect marine mammal species directly (if water quality is affected as a result of an unplanned spill, litter is ingested or animals become entangled in marine debris) and/or indirectly (if contaminated prey items are ingested). Therefore, LSE applies to pollution (HRA Report (APP-491, Rev 002) Sections 7.2.3 and 9.1.4, Table 7.8 and 9.1, and Integrity Matrix 18 below).
- f. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on either harbour porpoise, grey seal or harbour seal which are qualifying features of the Baie de Canche et couloir des trois estuaires SAC with the exception of pollution. This is because there is negligible potential for the sound produced by the Proposed Development to induce the onset of auditory injury (PTS), any disturbance is likely to be temporary and reversible with suitable alternative local habitat being available in the meantime, the risk of collision with vessels is considered to be negligible, and short term local level changes in prey availability/quality as a result of indirect effects will not result in a reduction in either fitness or breeding success. Therefore, no LSE as a result of the contribution of the Proposed Development to any potential in combination effects (with the exception of pollution) on the marine mammal features of the Baie de Canche et couloir des trois estuaires SAC can be concluded. However, LSE applies in relation to pollution therefore in combination effects for pollution have been taken through to AA (HRA Report (APP-491, Rev 002) Sections 8.2.3 and 9.1.4, Table 9.1 and Integrity Matrix 18 below).

HRA Screening Matrix 16A: Baie de Seine Orientale SAC (Fish)

Name of European site and designation: Baie de Seine Orientale SAC (fish)																														
EU Code: FR2502021																														
Distance to Proposed Development: 90.9 km																														
European site features			Likely Effects of the Proposed Development																											
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects					
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
1102 Allis shad	x	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	xe	xf	xf	xf		x			x		✓	✓		✓	✓	✓i
1103 Twaité shad	x	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	xe	xf	xf	xf		x			x		✓	✓		✓	✓	✓i
1095 Sea lamprey	x	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	xe					x			x		✓	✓		✓	✓	✓i
1099 River lamprey	x	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	xe					x			x		✓	✓		✓	✓	✓i
1106 Atlantic salmon	x	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	xe	xf	xf	xf		x			x		✓	✓		✓	✓	✓i
1351 Harbour porpoise																														
1364 Grey seal																														
1365 Harbour seal																														

Name of European site and designation: Baie de Seine Orientale SAC (fish)																											
EU Code: FR2502021																											
Distance to Proposed Development: 90.9 km																											
European site features			Likely Effects of the Proposed Development																								
<i>Effect</i>	<i>Increased SSC</i>			<i>Physical Injury</i>			<i>Invasive species</i>			<i>Pollution events</i>			<i>Noise and vibration</i>			<i>Visual Disturbance</i>			<i>EMF</i>			<i>Temperature changes</i>			<i>In combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
1349 Bottlenose dolphin																											
1110 Sandbanks which are slightly covered by sea water all the time																											
1160 Large shallow inlets and bays																											
1170 Reefs																											

Evidence supporting conclusions (also see HRA Report Section 7.2.2 and 8.2.2):

- a. Twait shad, allis shad, sea lamprey (and transformers), river lamprey (and transformers) and salmon (and smolts) are tolerant of naturally high levels of SSC given their riverine migration and are able to swim through or navigate round areas of elevated SSC in the marine environment. Therefore, no LSE as a result of increased SSC during construction, operation and decommissioning can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2, 7.4 and 7.6).
- b. Twait shad, allis shad, sea lamprey, river lamprey and salmon are highly mobile and able to avoid collisions with installation and maintenance vessels and infrastructure. Therefore, no LSE as a result of physical injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2, 7.4 and 7.6).
- c. Invasive species such as parasites or migratory fish species introduced as a result of construction, operation and decommissioning will not harm twait shad, allis shad, sea lamprey, river lamprey and salmon given that there is no evidence to suggest that these types of species are introduced via biofouling or ballast water. Therefore, no LSE as a result of invasive species can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.2 and 7.4 and 7.6).
- d. Potential for hydrocarbon and/or chemical pollution events exists, therefore LSE cannot be ruled out (HRA Report (APP-491, Rev 002) Sections 7.2.2 and 9.1.3, Tables 7.2, 7.4, 7.6 and 9.1, and Integrity Matrix 15 below).
- e. Twait and allis shad are hearing specialists due to the coupling of the ear with the swim bladder. Although TTS may occur if an individual is within 160 m of trenching equipment it is considered as this species is highly mobile and generally pelagic that they will move away before an impact occurs. River lamprey, sea lamprey and salmon are hearing generalists with potential underwater noise emissions from the construction, operation and decommissioning of the Proposed Development falling below the levels expected to produce mortality, mortal injury or recoverable injury. Therefore, no LSE as a result of noise and vibration can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2, 7.4 and 7.6).
- f. Twait shad, allis shad and salmon will be accustomed to vessel traffic and will navigate round or under installation, maintenance and decommissioning vessels. Therefore, no LSE as a result of visual disturbance can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2, 7.4 and 7.6).
- g. Twait shad, allis shad and salmon are pelagic and generally use the zone close to the sea surface for migration so will not come into contact with EMF during operation of the Proposed Development. In addition, salmon show a lack of behavioural response to EMF and shad do not possess ampullary organs instead relying on sight or sensory organs to locate prey. River and sea lamprey use both the pelagic and benthic zones for migration and may therefore come into contact with weak EMF from the Proposed Development however no responses to electromagnetic fields have been recorded for this species. Therefore, no LSE as a result of EMF can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.3, 7.5 and 7.7).
- h. Twait shad, allis shad and salmon are pelagic and generally use the zone close to the sea surface for migration so will not come into contact with any temperature changes during operation of the Proposed Development. Sea lamprey and river lamprey are highly mobile and not dependent on the seabed and will not come into contact with any temperature changes at seabed surface. Therefore, no LSE as a result of temperature changes can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.3, 7.5 and 7.7).
- i. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on twait shad, allis shad, sea lamprey, river lamprey and salmon with the exception of pollution events. Therefore, LSE cannot be ruled out for this effect in combination (HRA Report (APP-491, Rev 002) Section 8.2.2 and 9.1.3, Table 9.1 and Integrity Matrix 15 below).

HRA Screening Matrix 16B: Baie de Seine Orientale SAC (Marine Mammals)

Name of European site and designation: Baie de Seine Orientale SAC (Marine Mammals)																		
EU Code: FR2502021																		
Distance to Proposed Development: 91 km																		
European site features [§]	Likely Effects of the Proposed Development																	
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development																		
1349 Bottlenose dolphin	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	x _d	x _d	x _d	√ _e	√ _e	√ _e	√ _f	√ _f	√ _f
1351 Harbour porpoise	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	x _d	x _d	x _d	√ _e	√ _e	√ _e	√ _f	√ _f	√ _f
1364 Grey seal	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	x _d	x _d	x _d	√ _e	√ _e	√ _e	√ _f	√ _f	√ _f
1365 Harbour seal	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	x _d	x _d	x _d	√ _e	√ _e	√ _e	√ _f	√ _f	√ _f
1095 Sea lamprey																		
1099 River lamprey																		
1102 Allis shad																		
1103 Twaite shad																		
1106 Atlantic salmon																		
1110 Sandbanks which are slightly covered by sea water all the time																		
1160 Large shallow inlets and bays																		
1170 Reefs																		

Evidence supporting conclusions:

- Given the geophysical survey and positioning equipment likely to be used, and the activities which have been proposed, there is negligible potential for the sound produced to induce the onset of auditory injury (PTS). Therefore, no LSE as a result of auditory injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- Although there is potential for disturbance of a very small number of individuals as a result of increased anthropogenic noise from the geophysical survey and positioning equipment likely to be used, any effects are likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. Disturbance ranges as a result of increased anthropogenic noise from the activities and vessels proposed are likely to be small therefore there is negligible potential for disturbance; furthermore, any effects are likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. Any changes to swimming behaviour as a result of the presence of EMF (operational phase only) are likely to be corrected within a few metres and therefore have minimal effect. The potential for disturbance of seals hauled out within this SAC is considered to be nil due to the distance between the Proposed Development and the SAC (91 km). Therefore, no LSE as a result of disturbance can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- Given the number, type and behaviour of vessels required, and the fact that the species under consideration are small and agile, the risk of collision is considered to be negligible. Therefore, no LSE as a result of collision can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- Indirect effects such as changes in suspended sediment levels as a result of trenching and dredging have the potential to affect prey availability/quality and alter marine mammal foraging behaviour/success. However, because marine mammals range widely and forage in a variety of habitats using a variety of cues, any short-term local level changes in prey availability/quality will not result in a reduction in either fitness or breeding success. Therefore, no LSE as a result of indirect effects can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- Pollution (unplanned spills/disposal of litter) may affect marine mammal species directly (if water quality is affected as a result of an unplanned spill, litter is ingested or animals become entangled in marine debris) and/or indirectly (if contaminated prey items are ingested). Therefore, LSE applies to pollution (HRA Report (APP-491, Rev 002) Sections 7.2.3 and 9.1.4, Tables 7.8 and 9.1, and Integrity Matrix 19 below).

[§] As per <https://inpn.mnhn.fr/docs/natura2000/fsdpdf/FR2502021.pdf> [accessed 02/06/2019]

f. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on either bottlenose dolphin, harbour porpoise, grey seal or harbour seal which are qualifying features of the Baie de Seine Orientale SAC with the exception of pollution. This is because there is negligible potential for the sound produced by the Proposed Development to induce the onset of auditory injury (PTS), any disturbance is likely to be temporary and reversible with suitable alternative local habitat being available in the meantime, the risk of collision with vessels is considered to be negligible, and short term local level changes in prey availability/quality as a result of indirect effects will not result in a reduction in either fitness or breeding success. Therefore, no LSE as a result of the contribution of the Proposed Development to any potential in combination effects (with the exception of pollution) on the marine mammal features of the Baie de Seine Orientale SAC can be concluded. However, LSE applies in relation to pollution therefore in combination effects for pollution have been taken through to AA (HRA Report (APP-491, Rev 002) Sections 8.2.3 and 9.1.4, Table 9.1 and Integrity Matrix 19 below).

HRA Screening Matrix 17A: Littoral Cauchois SAC (Fish)

Name of European site and designation: Littoral Cauchois SAC (fish)																											
EU Code: FR2300139																											
Distance to Proposed Development: 52.7 km																											
European site features					Likely Effects of the Proposed Development																						
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects		
	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
Stage of Development																											
1103 Twaite shad	x	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	xe	x	x	x	x			x			✓	✓	✓i
1099 River lamprey	x	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	xe				x			x			✓	✓	✓i
1095 Sea lamprey	x	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	xe				x			x			✓	✓	✓i
1166 Crested newt																											
1163 Freshwater sculpin)																											
1044 Southern coenagrion																											
6199 Jersey tiger																											
1083 Stag beetle (Lucanus cervus)																											
1308 Barbastelle																											
1364 Grey seal																											
1323 Bechsteins bat																											
1321 Geoffroy's bat																											
1324 Greater mouse-eared bat																											
1365 Harbour seal																											
1351 Common Porpoise																											
1304 Greater horseshoe bat (Rhinolophus ferrumequinum)																											
1303 Lesser horseshoe bat (Rhinolophus hipposideros)																											
1349 Bottle-nosed Dolphin																											
1170 Reefs																											
1220 Perennial vegetation of stony banks																											

Name of European site and designation: Littoral Cauchois SAC (fish)																											
EU Code: FR2300139																											
Distance to Proposed Development: 52.7 km																											
European site features	Likely Effects of the Proposed Development																										
	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects		
Effect	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
Stage of Development																											
1230 Vegetated sea cliffs of the Atlantic and Baltic coasts																											
3110 Oligotrophic waters containing very few minerals of sandy plains (<i>littorelletalia uniflorae</i>)																											
3140 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp																											
3150 Natural eutrophic lakes and Magnopotamion or Hydrocharition – type vegetation																											
4020 Temperate Atlantic wet heaths with <i>Erica ciliaris</i> and <i>Erica tetralix</i>																											
4030 European dry heaths																											
6410 Molina meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)																											
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels																											
6510 Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)																											
7220 Petrifying springs with tufa formation (<i>Cratoneurion</i>)																											
7230 Alkaline fens																											
8310 Caves not open to the public																											
9120 Atlantic acidophilous beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in shrublayer (<i>Quercion robri-petraeae</i> or <i>Ilici-fagenion</i>)																											
9130 Asperulo-Fagetum beech forests																											
9180 Tilio-Acerion forests of slopes, screes and ravines																											
9190 Old acidophilous oak woods with <i>Quercus rubur</i> on sandy plains																											
91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)																											

Evidence supporting conclusions:

- a. Twait shad, river lamprey (and transformers) and sea lamprey (and transformers) are tolerant of naturally high levels of SSC given their riverine migration and are able to swim through of navigate round areas of elevated SSC in the marine environment. Therefore, no LSE as a result of increased SSC during construction, operation and decommissioning can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.4 and 7.6).

- b. Twaite shad, river lamprey and sea lamprey are highly mobile and able to avoid collisions with installation and maintenance vessels and infrastructure. Therefore, no LSE as a result of physical injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.4 and 7.6).
- c. Invasive species such as parasites or migratory fish species introduced as a result of construction, operation and decommissioning will not harm twaite shad, river lamprey and sea lamprey given that there is no evidence to suggest that these types of species are introduced via biofouling or ballast water. Therefore, no LSE as a result of invasive species can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.4 and 7.6).
- d. Potential for hydrocarbon and/or chemical pollution events exists, therefore LSE cannot be ruled out (HRA Report (APP-491, Rev 002) Sections 7.2.2 and 9.1.3, Tables 7.4, 7.6 and 9.1, and Integrity Matrix 16 below).
- e. Twaite shad are hearing specialists due to the coupling of the ear with the swim bladder. Although TTS may occur if an individual is within 160m of trenching equipment it is considered as this species is highly mobile and generally pelagic that they will move away before an impact occurs. Both river and sea lamprey are hearing generalists with potential underwater noise emissions from the construction, operation and decommissioning of the Proposed Development falling below the levels expected to produce mortality, mortal injury or recoverable injury. Therefore, no LSE as a result of noise and vibration can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.4 and 7.6).
- f. Twaite shad will be accustomed to vessels traffic and will navigate round or under installation, maintenance and decommissioning vessels. Therefore, no LSE as a result of visual disturbance can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.4 and 7.6).
- g. Twaite shad are generally pelagic so will not come into contact with EMF during operation of the Proposed Development. In addition, shad do not possess ampullary organs instead relying on sight or sensory organs to locate prey. Both river and sea lamprey use both the pelagic and benthic zones for migration and may therefore come into contact with weak EMF from the Proposed Development however no responses to electromagnetic fields have been recorded for this species. Therefore, no LSE as a result of EMF can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.5 and 7.7).
- h. Twaite shad are generally pelagic so will not come into contact with any temperature changes during operation of the Proposed Development. Sea lamprey and river lamprey are highly mobile and not dependent on the seabed and will not come into contact with any temperature changes at seabed surface. Therefore, no LSE as a result of temperature changes can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.5 and 7.7).
- i. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on twaite shad, river lamprey and sea lamprey with the exception of pollution events. Therefore, LSE cannot be ruled out for this effect in combination. No LSE was concluded for both of these effects in combination with other projects (HRA Report (APP-491, Rev 002) Sections 8.2.2 and 9.1.3, Table 9.1 and Integrity Matrix 16 below).

HRA Screening Matrix 17B: Littoral Cauchois SAC (Marine Mammals)

Name of European site and designation: Littoral Cauchois SAC (Marine Mammals)																		
EU Code: FR2300139																		
Distance to NSIP: 53 km																		
European site features**	Likely Effects of the Proposed Development																	
<i>Effect</i>	<i>Auditory injury</i>			<i>Disturbance</i>			<i>Collision</i>			<i>Indirect effects</i>			<i>Pollution</i>			<i>In combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
<i>1349 Bottlenose dolphin</i>	x a	x a	x a	x b	x b	x b	x c	x c	x c	x d	x d	x d	✓e	✓e	✓e	✓f	✓f	✓f
<i>1351 Harbour porpoise</i>	x a	x a	x a	x b	x b	x b	x c	x c	x c	x d	x d	x d	✓e	✓e	✓e	✓f	✓f	✓f
<i>1364 Grey seal</i>	x a	x a	x a	x b	x b	x b	x c	x c	x c	x d	x d	x d	✓e	✓e	✓e	✓f	✓f	✓f
<i>1365 Harbour seal</i>	x a	x a	x a	x b	x b	x b	x c	x c	x c	x d	x d	x d	✓e	✓e	✓e	✓f	✓f	✓f
<i>1103 Alosa fallax</i>																		
<i>1308 Barbastella barbastellus</i>																		
<i>1044 Coenagrion mercurial</i>																		

** As per <https://eunis.eea.europa.eu/sites/FR2300139> [accessed 11/06/2019]

Name of European site and designation: Littoral Cauchois SAC (Marine Mammals)																		
EU Code: FR2300139																		
Distance to NSIP: 53 km																		
European site features**	Likely Effects of the Proposed Development																	
<i>Effect</i>	<i>Auditory injury</i>			<i>Disturbance</i>			<i>Collision</i>			<i>Indirect effects</i>			<i>Pollution</i>			<i>In combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
1163 <i>Cottus gobio</i>																		
6199 <i>Euplagia quadripunctaria</i>																		
1099 <i>Lampetra fluviatilis</i>																		
1083 <i>Lucanus cervus</i>																		
1323 <i>Myotis bechsteinii</i>																		
1321 <i>Myotis emarginatus</i>																		
1324 <i>Myotis myotis</i>																		
1095 <i>Petromyzon marinus</i>																		
1304 <i>Rhinolophus ferrumequinum</i>																		
1303 <i>Rhinolophus hipposideros</i>																		
1166 <i>Triturus cristatus</i>																		
1170 Reefs																		
1220 <i>Perennial vegetation of stony banks</i>																		
1230 <i>Vegetated sea cliffs of the Atlantic and Baltic Coasts</i>																		
3110 <i>Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)</i>																		
3140 <i>Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.</i>																		
3150 <i>Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation</i>																		
4020 <i>Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix</i>																		
4030 <i>European dry heaths</i>																		
6410 <i>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)</i>																		
6430 <i>Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels</i>																		
6510 <i>Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)</i>																		
7220 <i>Petrifying springs with tufa formation (Cratoneurion)</i>																		
7230 <i>Alkaline fens</i>																		
8310 <i>Caves not open to the public</i>																		

Name of European site and designation: Littoral Cauchois SAC (Marine Mammals)																		
EU Code: FR2300139																		
Distance to NSIP: 53 km																		
European site features**	Likely Effects of the Proposed Development																	
<i>Effect</i>	<i>Auditory injury</i>			<i>Disturbance</i>			<i>Collision</i>			<i>Indirect effects</i>			<i>Pollution</i>			<i>In combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
<i>9120 Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)</i>																		
<i>9130 Asperulo-Fagetum beech forests</i>																		
<i>9180 Tilio-Acerion forests of slopes, screes and ravines</i>																		
<i>9190 Old acidophilous oak woods with Quercus robur on sandy plains</i>																		
<i>91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)</i>																		

Evidence supporting conclusions:

- a. Given the geophysical survey and positioning equipment likely to be used, and the activities which have been proposed, there is negligible potential for the sound produced to induce the onset of auditory injury (PTS). Therefore, no LSE as a result of auditory injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- b. Although there is potential for disturbance of a very small number of individuals as a result of increased anthropogenic noise from the geophysical survey and positioning equipment likely to be used, any effects are likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. Disturbance ranges as a result of increased anthropogenic noise from the activities and vessels proposed are likely to be small therefore there is negligible potential for disturbance; furthermore, any effects are likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. Any changes to swimming behaviour as a result of the presence of EMF (operational phase only) are likely to be corrected within a few metres and therefore have minimal effect. The potential for disturbance of seals hauled out within this SAC is considered to be nil due to the distance between the Proposed Development and the SAC (53 km). Therefore, no LSE as a result of disturbance can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- c. Given the number, type and behaviour of vessels required, and the fact that the species under consideration are small and agile, the risk of collision is considered to be negligible. Therefore, no LSE as a result of collision can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- d. Indirect effects such as changes in suspended sediment levels as a result of trenching and dredging have the potential to affect prey availability/quality and alter marine mammal foraging behaviour/success. However, because marine mammals range widely and forage in a variety of habitats using a variety of cues, any short-term local level changes in prey availability/quality will not result in a reduction in either fitness or breeding success. Therefore, no LSE as a result of indirect effects can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3 Table 7.8).
- e. Pollution (unplanned spills/disposal of litter) may affect marine mammal species directly (if water quality is affected as a result of an unplanned spill, litter is ingested or animals become entangled in marine debris) and/or indirectly (if contaminated prey items are ingested). Therefore, LSE applies to pollution (HRA Report (APP-491, Rev 002) Sections 7.2.3 and 9.1.4, Tables 7.8 and 9.1, and Integrity Matrix 20 below).
- f. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on either bottlenose dolphin, harbour porpoise, grey seal or harbour seal which are qualifying features of the Littoral Cauchois SAC with the exception of pollution. This is because there is negligible potential for the sound produced by the Proposed Development to induce the onset of auditory injury (PTS), any disturbance is likely to be temporary and reversible with suitable alternative local habitat being available in the meantime, the risk of collision with vessels is considered to be negligible, and short term local level changes in prey availability/quality as a result of indirect effects will not result in a reduction in either fitness or breeding success. Therefore, no LSE as a result of the contribution of the Proposed Development to any potential in combination effects (with the exception of pollution) on the marine mammal features of the Littoral Cauchois SAC

can be concluded. However, LSE applies in relation to pollution therefore in combination effects for pollution have been taken through to AA (HRA Report (APP-491, Rev 002) Sections 8.2.3 and 9.1.4, Table 9.1 and Integrity Matrix 20 below).

HRA Screening Matrix 18: Récifs Gris-Nez Blanc-Nez SAC (Marine Mammals)

Name of European site and designation: Récifs Gris-Nez Blanc-Nez SAC (Marine Mammals)																		
EU Code: FR3102003																		
Distance to Proposed Development: 104 km																		
European site features ^{††}	Likely Effects of the Proposed Development																	
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
1351 Harbour porpoise	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	x _d	x _d	x _d	✓ _e	✓ _e	✓ _e	✓ _f	✓ _f	✓ _f
1364 Grey seal	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	x _d	x _d	x _d	✓ _e	✓ _e	✓ _e	✓ _f	✓ _f	✓ _f
1365 Harbour seal	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	x _d	x _d	x _d	✓ _e	✓ _e	✓ _e	✓ _f	✓ _f	✓ _f
1110 Sandbanks which are slightly covered by sea water all the time																		
1170 Reefs																		

Evidence supporting conclusions ():

- Given the geophysical survey and positioning equipment likely to be used, and the activities which have been proposed, there is negligible potential for the sound produced to induce the onset of auditory injury (PTS). Therefore, no LSE as a result of auditory injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- Although there is potential for disturbance of a very small number of individuals as a result of increased anthropogenic noise from the geophysical survey and positioning equipment likely to be used, any effects are likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. Disturbance ranges as a result of increased anthropogenic noise from the activities and vessels proposed are likely to be small therefore there is negligible potential for disturbance; furthermore, any effects are likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. Any changes to swimming behaviour as a result of the presence of EMF (operational phase only) are likely to be corrected within a few metres and therefore have minimal effect. The potential for disturbance of seals hauled out within this SAC is considered to be nil due to the distance between the Proposed Development and the SAC (104 km). Therefore, no LSE as a result of disturbance can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- Given the number, type and behaviour of vessels required, and the fact that the species under consideration are small and agile, the risk of collision is considered to be negligible. Therefore, no LSE as a result of collision can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- Indirect effects such as changes in suspended sediment levels as a result of trenching and dredging have the potential to affect prey availability/quality and alter marine mammal foraging behaviour/success. However, because marine mammals range widely and forage in a variety of habitats using a variety of cues, any short term local level changes in prey availability/quality will not result in a reduction in either fitness or breeding success. Therefore, no LSE as a result of indirect effects can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- Pollution (unplanned spills/disposal of litter) may affect marine mammal species directly (if water quality is affected as a result of an unplanned spill, litter is ingested or animals become entangled in marine debris) and/or indirectly (if contaminated prey items are ingested). Therefore, LSE applies to pollution (HRA Report (APP-491, Rev 002) Sections 7.2.3 and 9.1.4, Tables 7.8 and 9.1, and Integrity Matrix 21 below).
- There is negligible potential for the Proposed Development to contribute to any potential in combination effects on either harbour porpoise, grey seal or harbour seal which are qualifying features of the Récifs Gris-Nez Blanc-Nez SAC with the exception of pollution. This is because there is negligible potential for the sound produced by the Proposed Development to induce the onset of auditory

^{††} As per <https://inpn.mnhn.fr/docs/natura2000/fsdpdf/FR3102003.pdf> [accessed 05/06/2019]

injury (PTS), any disturbance is likely to be temporary and reversible with suitable alternative local habitat being available in the meantime, the risk of collision with vessels is considered to be negligible, and short term local level changes in prey availability/quality as a result of indirect effects will not result in a reduction in either fitness or breeding success. Therefore no LSE as a result of the contribution of the Proposed Development to any potential in combination effects (with the exception of pollution) on the marine mammal features of the Récifs Gris-Nez Blanc-Nez SAC can be concluded. However, LSE applies in relation to pollution therefore in combination effects for pollution have been taken through to AA (HRA Report (APP-491, Rev 002) Sections 8.2.3 and 9.1.4, Table 9.1 and Integrity Matrix 21 below).

HRA Screening Matrix 19: Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC (Marine Mammals)

Name of European site and designation: Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC (Marine Mammals)																		
EU Code: FR3102004																		
Distance to Proposed Development: 59 km																		
European site features ^{##}	Likely Effects of the Proposed Development																	
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
1351 Harbour porpoise	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	x _d	x _d	x _d	✓ _e	✓ _e	✓ _e	✓ _f	✓ _f	✓ _f
1364 Grey seal	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	x _d	x _d	x _d	✓ _e	✓ _e	✓ _e	✓ _f	✓ _f	✓ _f
1365 Harbour seal	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	x _d	x _d	x _d	✓ _e	✓ _e	✓ _e	✓ _f	✓ _f	✓ _f
1110 Sandbanks which are slightly covered by sea water all the time																		
1170 Reefs																		

Evidence supporting conclusions:

- a. Given the geophysical survey and positioning equipment likely to be used, and the activities which have been proposed, there is negligible potential for the sound produced to induce the onset of auditory injury (PTS). Therefore, no LSE as a result of auditory injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- b. Although there is potential for disturbance of a very small number of individuals as a result of increased anthropogenic noise from the geophysical survey and positioning equipment likely to be used, any effects are likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. Disturbance ranges as a result of increased anthropogenic noise from the activities and vessels proposed are likely to be small therefore there is negligible potential for disturbance; furthermore, any effects are likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. Any changes to swimming behaviour as a result of the presence of EMF (operational phase only) are likely to be corrected within a few metres and therefore have minimal effect. The potential for disturbance of seals hauled out within this SAC is considered to be nil due to the distance between the Proposed Development and the SAC (59 km). Therefore, no LSE as a result of disturbance can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- c. Given the number, type and behaviour of vessels required, and the fact that the species under consideration are small and agile, the risk of collision is considered to be negligible. Therefore, no LSE as a result of collision can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- d. Indirect effects such as changes in suspended sediment levels as a result of trenching and dredging have the potential to affect prey availability/quality and alter marine mammal foraging behaviour/success. However, because marine mammals range widely and forage in a variety of habitats using a variety of cues, any short term local level changes in prey availability/quality will not result in a reduction in either fitness or breeding success. Therefore, no LSE as a result of indirect effects can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- e. Pollution (unplanned spills/disposal of litter) may affect marine mammal species directly (if water quality is affected as a result of an unplanned spill, litter is ingested or animals become entangled in marine debris) and/or indirectly (if contaminated prey items are ingested). Therefore, LSE applies to pollution (HRA Report (APP-491, Rev 002) Sections 7.2.3 and 9.1.4, Tables 7.8 and 9.1, and Integrity Matrix 22 below).

^{##} As per <https://inpn.mnhn.fr/docs/natura2000/fsdpdf/FR3102004.pdf> [accessed 05/06/2019]

- f. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on either harbour porpoise, grey seal or harbour seal which are qualifying features of the Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC with the exception of pollution. This is because there is negligible potential for the sound produced by the Proposed Development to induce the onset of auditory injury (PTS), any disturbance is likely to be temporary and reversible with suitable alternative local habitat being available in the meantime, the risk of collision with vessels is considered to be negligible, and short term local level changes in prey availability/quality as a result of indirect effects will not result in a reduction in either fitness or breeding success. Therefore, no LSE as a result of the contribution of the Proposed Development to any potential in combination effects (with the exception of pollution) on the marine mammal features of the Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC can be concluded. However, LSE applies in relation to pollution therefore in combination effects for pollution have been taken through to AA (HRA Report (APP-491, Rev 002) Sections 8.2.3 and 9.1.4, Table 9.1 and Integrity Matrix 22 below).

HRA Screening Matrix 20: Estuaire de la Seine SAC (Marine Mammals)

Name of European site and designation: Estuaire de la Seine SAC (Marine Mammals)																		
EU Code: FR2300121																		
Distance to NSIP: 90 km																		
European site features ^{§§}	Likely Effects of the Proposed Development																	
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development																		
1351 Harbour porpoise	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd	✓e	✓e	✓e	✓f	✓f	✓f
1364 Grey seal	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd	✓e	✓e	✓e	✓f	✓f	✓f
1365 Harbour seal	Xa	Xa	Xa	Xb	Xb	Xb	Xc	Xc	Xc	Xd	Xd	Xd	✓e	✓e	✓e	✓f	✓f	✓f
1044 Southern damselfly																		
1065 Marsh fritillary butterfly																		
1083 Stag beetle																		
1095 Sea lamprey																		
1096 Brook lamprey																		
1099 River lamprey																		
1103 Twaite shad																		
1106 Atlantic salmon																		
1166 Great crested newt																		
1304 Greater horseshoe bat																		
1308 Barbastelle																		
1324 Greater mouse-eared bat																		
5315 Bullhead																		
6199 Jersey tiger																		
1110 Sandbanks which are slightly covered by sea water all the time																		
1130 Estuaries																		
1140 Mudflats and sandflats not covered by seawater at low tide																		
1170 Reefs																		
1210 Annual vegetation of drift lines																		
1220 Perennial vegetation of stony banks																		
1310 Salicornia and other annuals colonizing mud and sand																		
1330 Atlantic salt meadows																		

§§ As per <https://inpn.mnhn.fr/docs/natura2000/fsdpdf/FR2300121.pdf> [accessed 02/06/2019]

Name of European site and designation: Estuaire de la Seine SAC (Marine Mammals)																		
EU Code: FR2300121																		
Distance to NSIP: 90 km																		
European site features ^{§§}	Likely Effects of the Proposed Development																	
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development																		
2110 Embryonic shifting dunes																		
2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")																		
2130 Fixed coastal dunes with herbaceous vegetation ("grey dunes")																		
2160 Dunes with <i>Hippophae rhamnoides</i>																		
2180 Wooded dunes of the Atlantic, Continental and Boreal region																		
2190 Humid dune slacks																		
3140 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.																		
3150 Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation																		
3260 Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation																		
6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>)																		
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels																		
6510 Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)																		
9120 Atlantic acidophilous beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrublayer (<i>Quercion robori-petraeae</i> or <i>Ilici-Fagenion</i>)																		
9130 <i>Asperulo-Fagetum</i> beech forests																		
9180 <i>Tilio-Acerion</i> forests of slopes, scree and ravines																		

Evidence supporting conclusions:

- a. Given the geophysical survey and positioning equipment likely to be used, and the activities which have been proposed, there is negligible potential for the sound produced to induce the onset of auditory injury (PTS). Therefore, no LSE as a result of auditory injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- b. Although there is potential for disturbance of a very small number of individuals as a result of increased anthropogenic noise from the geophysical survey and positioning equipment likely to be used, any effects are likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. Disturbance ranges as a result of increased anthropogenic noise from the activities and vessels proposed are likely to be small therefore there is negligible potential for disturbance; furthermore, any effects are likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. Any changes to swimming behaviour as a result of the presence of EMF (operational phase only) are likely to be corrected within a few metres and therefore have minimal effect. The potential for disturbance of seals hauled out within this SAC is considered to be nil due to the distance between the Proposed Development and the SAC (90 km). Therefore, no LSE as a result of disturbance can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- c. Given the number, type and behaviour of vessels required, and the fact that the species under consideration are small and agile, the risk of collision is considered to be negligible. Therefore no LSE as a result of collision can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).

- d. Indirect effects such as changes in suspended sediment levels as a result of trenching and dredging have the potential to affect prey availability/quality and alter marine mammal foraging behaviour/success. However, because marine mammals range widely and forage in a variety of habitats using a variety of cues, any short-term local level changes in prey availability/quality will not result in a reduction in either fitness or breeding success. Therefore, no LSE as a result of indirect effects can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.3, Table 7.8).
- e. Pollution (unplanned spills/disposal of litter) may affect marine mammal species directly (if water quality is affected as a result of an unplanned spill, litter is ingested or animals become entangled in marine debris) and/or indirectly (if contaminated prey items are ingested). Therefore, LSE applies to pollution (HRA Report (APP-491, Rev 002) Sections 7.2.3 and 9.1.4, Tables 7.8 and 9.1, and Integrity Matrix 23 below).
- f. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on either harbour porpoise, grey seal or harbour seal which are qualifying features of the Estuaire de la Seine SAC with the exception of pollution. This is because there is negligible potential for the sound produced by the Proposed Development to induce the onset of auditory injury (PTS), any disturbance is likely to be temporary and reversible with suitable alternative local habitat being available in the meantime, the risk of collision with vessels is considered to be negligible, and short term local level changes in prey availability/quality as a result of indirect effects will not result in a reduction in either fitness or breeding success. Therefore, no LSE as a result of the contribution of the Proposed Development to any potential in combination effects (with the exception of pollution) on the marine mammal features of the Estuaire de la Seine SAC can be concluded. However, LSE applies in relation to pollution therefore in combination effects for pollution have been taken through to AA (HRA Report (APP-491, Rev 002) Sections 8.2.3 and 9.1.4, Table 9.1 and Integrity Matrix 23 below).

HRA Screening Matrix 21: Estuaire de la Seine SAC (Fish)

Name of European site and designation: Estuaire de la Seine SAC (Fish)																																	
EU Code: FR2300121																																	
Distance to NSIP: 90 km																																	
European site features***																																	
Effect	Likely Effects of the Proposed Development																																
	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects								
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			
1103 Twaité shad	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	√ _d	√ _d	√ _d	x _e	x _e	x _e	x _f	x _f	x _f				x _g						√ _i	√ _i	√ _i			
1095 Sea lamprey	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	√ _d	√ _d	√ _d	x _e	x _e	x _e							x _g						x _h			√ _i	√ _i	√ _i
1099 River lamprey	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	√ _d	√ _d	√ _d	x _e	x _e	x _e							x _g						x _h			√ _i	√ _i	√ _i
1106 Atlantic salmon	x _a	x _a	x _a	x _b	x _b	x _b	x _c	x _c	x _c	√ _d	√ _d	√ _d	x _e	x _e	x _e	x _f	x _f	x _f				x _g						x _h			√ _i	√ _i	√ _i
1351 Harbour porpoise																																	
1364 Grey seal																																	
1365 Harbour seal																																	
1044 Southern damselfly																																	
1065 Marsh fritillary butterfly																																	
1083 Stag beetle																																	
1096 Brook lamprey																																	
1166 Great crested newt																																	
1304 Greater horseshoe bat																																	
1308 Barbastelle																																	
1324 Greater mouse-eared bat																																	
5315 Bullhead																																	
6199 Jersey tiger																																	
1110 Sandbanks which are slightly covered by sea water all the time																																	

*** As per <https://inpn.mnhn.fr/docs/natura2000/fsdpdf/FR2300121.pdf> [accessed 02/06/2019]

Name of European site and designation: Estuaire de la Seine SAC (Fish)																														
EU Code: FR2300121																														
Distance to NSIP: 90 km																														
European site features***	Likely Effects of the Proposed Development																													
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects					
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
1130 Estuaries																														
1140 Mudflats and sandflats not covered by seawater at low tide																														
1170 Reefs																														
1210 Annual vegetation of drift lines																														
1220 Perennial vegetation of stony banks																														
1310 Salicornia and other annuals colonizing mud and sand																														
1330 Atlantic salt meadows																														
2110 Embryonic shifting dunes																														
2120 Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")																														
2130 Fixed coastal dunes with herbaceous vegetation ("grey dunes")																														
2160 Dunes with Hippophae rhamnoides																														
2180 Wooded dunes of the Atlantic, Continental and Boreal region																														
2190 Humid dune slacks																														
3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.																														
3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation																														
3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation																														
6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia)																														
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels																														
6510 Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)																														
9120 Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the																														

Name of European site and designation: Estuaire de la Seine SAC (Fish)																															
EU Code: FR2300121																															
Distance to NSIP: 90 km																															
European site features***					Likely Effects of the Proposed Development																										
<i>Effect</i>					<i>Increased SSC</i>			<i>Physical Injury</i>			<i>Invasive species</i>			<i>Pollution events</i>			<i>Noise and vibration</i>			<i>Visual Disturbance</i>			<i>EMF</i>			<i>Temperature changes</i>			<i>In combination effects</i>		
<i>Stage of Development</i>					<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
<i>shrublayer (Quercion robori-petraeae or Ilici-Fagenion)</i>																															
<i>9130 Asperulo-Fagetum beech forests</i>																															
<i>9180 Tilio-Acerion forests of slopes, screes and ravines</i>																															

Evidence supporting conclusions:

- a. Twaite shad, sea lamprey (and transformers), river lamprey (and transformers) and salmon (and smolts) are tolerant of naturally high levels of SSC given their riverine migration and are able to swim through or navigate round areas of elevated SSC in the marine environment. Therefore, no LSE as a result of increased SSC during construction, operation and decommissioning can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2, 7.4 and 7.6).
- b. Twaite shad, sea lamprey, river lamprey and salmon are highly mobile and able to avoid collisions with installation and maintenance vessels and infrastructure. Therefore, no LSE as a result of physical injury can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2, 7.4 and 7.6).
- c. Invasive species such as parasites or migratory fish species introduced as a result of construction, operation and decommissioning will not harm twaite shad, sea lamprey, river lamprey and salmon given that there is no evidence to suggest that these types of invasive species are introduced via biofouling or ballast water. Therefore, no LSE as a result of invasive species can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Table 7.2 and 7.4 and 7.6).
- d. Potential for hydrocarbon and/or chemical pollution events exists, therefore LSE cannot be ruled out (HRA Report (APP-491, Rev 002) Sections 7.2.2 and 9.1.3, Tables 7.2, 7.4, 7.6 and 9.1, and Integrity Matrix 24 below).
- e. Twaite shad are hearing specialists due to the coupling of the ear with the swim bladder. Although TTS may occur if an individual is within 160 m of trenching equipment it is considered as this species is highly mobile and generally pelagic that they will move away before an impact occurs. River lamprey, sea lamprey and salmon are hearing generalists with potential underwater noise emissions from the construction, operation and decommissioning of the Proposed Development falling below the levels expected to produce mortality, mortal injury or recoverable injury. Therefore, no LSE as a result of noise and vibration can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2, 7.4 and 7.6).
- f. Twaite shad and salmon will be accustomed to vessel traffic and will navigate round or under installation, maintenance and decommissioning vessels. Therefore, no LSE as a result of visual disturbance can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.2, 7.4 and 7.6).
- g. Twaite shad and salmon are pelagic and generally use the zone close to the sea surface for migration so will not come into contact with EMF during operation of the Proposed Development. In addition, salmon show a lack of behavioural response to EMF and shad do not possess ampullary organs instead relying on sight or sensory organs to locate prey. River and sea lamprey use both the pelagic and benthic zones for migration and may therefore come into contact with weak EMF from the Proposed Development however no responses to electromagnetic fields have been recorded for this species. Therefore, no LSE as a result of EMF can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.3, 7.5 and 7.7).
- h. Twaite shad and salmon are pelagic and generally use the zone close to the sea surface for migration so will not come into contact with any temperature changes during operation of the Proposed Development. Sea lamprey and river lamprey are highly mobile and not dependent on the seabed and will not come into contact with any temperature changes at seabed surface. Therefore, no LSE as a result of temperature changes can be concluded (HRA Report (APP-491, Rev 002) Section 7.2.2, Tables 7.3, 7.5 and 7.7).
- i. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on twaite shad, sea lamprey, river lamprey and salmon with the exception of pollution events. Therefore, LSE cannot be ruled out for this effect in combination (HRA Report (APP-491, Rev 002) Section 8.2.2 and 9.1.3, Table 9.1 and Integrity Matrix 24 below).

HRA Screening Matrix 22: Solent Maritime SAC (Annex I Habitat Features)

Name of European site and designation: Solent Maritime SAC																								
EU Code: UK0030059																								
Distance to Proposed Development: 0 km																								
European site features			Likely Effects of the Proposed Development																					
Effect	Increased SSC/smothering			Contaminated sediments			Habitat disturbance/loss			Hydrodynamic changes			Invasive species			Pollution events			EMF /Temperature			In combination effects		
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
Estuaries [1130]	✓a	✓b	✓a	xc	xc	xc	xd	xd	xd	xe	xe	xe	✓f	✓f	✓f	✓g	✓g	✓g		xh		✓i	✓i	✓i
Mudflats and sandflats (not submerged at low tide) [1140]	✓a	✓b	✓a	xc	xc	xc	xd	xd	xd	xe	xe	xe	✓f	✓f	✓f	✓g	✓g	✓g		xh		✓i	✓i	✓i
Sandbanks (slightly covered by seawater all the time) [1110]	✓a	✓b	✓a	xc	xc	xc	xd	xd	xd	xe	xe	xe	✓f	✓f	✓f	✓g	✓g	✓g		xh		✓i	✓i	✓i
Spartina swards [1320]	✓a	✓b	✓a	xc	xc	xc	xd	xd	xd	xe	xe	xe	✓f	✓f	✓f	✓g	✓g	✓g		xh		✓i	✓i	✓i
Atlantic salt meadows [1330]	✓a	✓b	✓a	xc	xc	xc	xd	xd	xd	xe	xe	xe	✓f	✓f	✓f	✓g	✓g	✓g		xh		✓i	✓i	✓i
Salicornia and other annuals colonising mud and sand [1310]	✓a	✓b	✓a	xc	xc	xc	xd	xd	xd	xe	xe	xe	✓f	✓f	✓f	✓g	✓g	✓g		xh		✓i	✓i	✓i
Shifting dunes along the shoreline [2120]																								
Coastal lagoons [1150]																								
Annual vegetation of drift lines [1210]																								
Perennial vegetation of stony banks [1220]																								
Desmoulin's whorl snail (Vertigo moulinsiana) [1016]																								

Evidence supporting conclusions:

- a. Due to the close proximity of the Solent Maritime SAC (including Langstone Harbour, the mouth of which is located less than a kilometre from the Marine Cable Corridor), and the resulting potential for high levels of SSC and sediment deposition within the SAC, it is considered that LSE cannot be ruled out for any feature which has connectivity to the work (HRA Report (APP-491, Rev 002) Sections 7.2.1 and 9.1.2, Tables 7.1 and 9.1, and Integrity Matrix 8 below).
- b. Due to the close proximity of the Solent Maritime SAC, and the resulting potential for increased SSC and sediment deposition within the SAC during maintenance and repair work, it is considered that LSE cannot be ruled out for any feature which has connectivity to the work (HRA Report (APP-491, Rev 002) Sections 7.2.1 and 9.1.2, Tables 7.1 and 9.1, and Integrity Matrix 8 below).
- c. Background levels of contaminants in sediments are generally low, and it is therefore considered that there is no potential for LSE to arise from any such resuspension (HRA Report (APP-491, Rev 002) Section 7.2.1, Table 7.1).
- d. No connectivity as no marine activities will take place within designated areas (HRA Report (APP-491, Rev 002) Section 7.2.1, Table 7.1).
- e. Any hydrodynamic changes resulting from seabed works for the project will be highly localised and are not therefore considered likely to result in significant effects (HRA Report (APP-491, Rev 002) Section 7.2.1, Table 7.1).
- f. Potential for transfer of INIS exists, therefore LSE cannot be ruled out (HRA Report (APP-491, Rev 002) Sections 7.2.1 and 9.1.2, Tables 7.1 and 9.1, and Integrity Matrix 7 below).

- g. Potential for hydrocarbon and/or chemical pollution events exists, therefore LSE cannot be ruled out as a result of such events. There is however no potential for LSE from light or noise effects to arise (HRA Report (APP-491, Rev 002) Sections 7.2.1 and 9.1.2, Tables 7.1 and 9.1, and Integrity Matrix 8 below).
- h. Due to burial depths, there will be negligible change in EMF compared to background levels, and as such it is considered there is no potential for LSE. Due to the use of HDD, the target burial depth under the SAC is 5 m. At this depth and as the cable will be contained within a duct, no temperature increases are considered likely to be detectable at the surface. It is considered there is no potential for LSE (HRA Report (APP-491, Rev 002) Section 7.2.1, Table 7.1).
- i. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on Solent Maritime SAC features with the exception of increased SSC/smothering, invasive species and pollution events. Therefore, LSE cannot be ruled out for these effects in combination (HRA Report (APP-491, Rev 002) Sections 8.2.1 and 9.1.2, Table 9.1 and Integrity Matrix 7 below).

HRA Screening Matrix 23: South Wight Maritime SAC (Annex I Habitat Features)

Name of European site and designation: South Wight Maritime SAC																								
EU Code: UK0030061																								
Distance to Proposed Development: 3.3 km																								
European site features			Likely Effects of the Proposed Development																					
Effect	Increased SSC/smothering			Habitat disturbance/loss			Contaminated sediments			Hydrodynamic changes			Invasive species			Pollution events			EMF/Temperature			In combination effects		
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
Reefs [1170]	✓a	✓b	✓a	xc	xc	xc	xd	xd	xd	xe	xe	xe	✓f	✓f	✓f	✓g	✓g	✓g		xc		✓h	✓h	✓h
Vegetated sea cliffs of the Atlantic and Baltic Coasts [1230]																								
Submerged or partially submerged sea caves [8330]	✓a	✓b	✓a	xc	xc	xc	xd	xd	xd	xe	xe	xe	✓f	✓f	✓f	✓g	✓g	✓g		xc		✓h	✓h	✓h

Evidence supporting conclusions:

- a. Due to the proximity of the SAC, and the resulting potential for SSC and sediment deposition within the SAC, it is considered that LSE cannot be ruled out for any feature which has connectivity to the work (HRA Report (APP-491, Rev 002) Sections 7.2.1 and 9.1.2, Tables 7.1 and 9.1, and Integrity Matrix 9 below).
- b. Due to the proximity of the SAC, and the resulting potential for SSC and sediment deposition within the SAC during maintenance and repair work, it is considered that LSE cannot be ruled out for any feature which has connectivity to the work (HRA Report (APP-491, Rev 002) Sections 7.2.1 and 9.1.2, Tables 7.1 and 9.1, and Integrity Matrix 9 below).
- c. No connectivity as no marine activities/cable installation will take place within designated area (HRA Report (APP-491, Rev 002) Section 7.2.1, Table 7.1).
- d. Background levels of contaminants in sediments are generally low, and it is therefore considered that there is no potential for LSE to arise from any such resuspension (HRA Report (APP-491, Rev 002) Section 7.2.1, Table 7.1).
- e. Any hydrodynamic changes resulting from seabed works for the project will be highly localised and are not therefore considered likely to result in significant effects (HRA Report (APP-491, Rev 002) Section 7.2.1, Table 7.1).
- f. Potential for transfer of INIS exists, therefore LSE cannot be ruled out (HRA Report (APP-491, Rev 002) Sections 7.2.1 and 9.1.2, Tables 7.1 and 9.1, and Integrity Matrix 8 below).
- g. Potential for hydrocarbon and/or chemical pollution events exists, therefore LSE cannot be ruled out as a result of such events. There is however no potential for LSE from light or noise effects to arise (HRA Report (APP-491, Rev 002) Sections 7.2.1 and 9.1.2, Tables 7.1 and 9.1, and Integrity Matrix 9 below).
- h. There is negligible potential for the Proposed Development to contribute to any potential in combination effects on South Wight Maritime SAC features with the exception of increased SSC/smothering, invasive species and pollution events. Therefore, LSE cannot be ruled out for these effects in combination (HRA Report (APP-491, Rev 002) Sections 8.2.1 and 9.1.2, Table 9.1 and Integrity Matrix 8 below).

HRA Screening Matrix 24: Solent and Isle of Wight Lagoons SAC (pre-screened out for Annex I habitat features)

Name of European site and designation: Solent and Isle of Wight Lagoons SAC																											
EU Code: UK0017073																											
Distance to Proposed Development: 4.6 km																											
European site features			Likely Effects of the Proposed Development																								
<i>Effect</i>	Increased SSC/smothering			Habitat disturbance/loss			Contaminated sediments			Hydrodynamic changes			Invasive species			Pollution events			EMF/Temperature			<i>In combination effects</i>					
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>			
Coastal lagoons [1150]	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a		x_a		x_a	x_a	x_a

Evidence supporting conclusions:

- a. Coastal lagoons do not overlap with the Marine Cable Corridor and are isolated from the sea via a barrier such as seawalls and sluice gates. Therefore, they have no connectivity with marine activities (HRA Report (APP-491, Rev 002) Section 6.2.2).

HRA Screening Matrix 25: Wight-Barfleur Reef SAC (pre-screened out for Annex I habitat features)

Name of European site and designation: Wight-Barfleur Reef SAC																											
EU Code: UK0030380																											
Distance to Proposed Development: 34 km																											
European site features			Likely Effects of the Proposed Development																								
<i>Effect</i>	Increased SSC/smothering			Habitat disturbance/loss			Contaminated sediments			Hydrodynamic changes			Invasive species			Pollution events			EMF/Temperature			<i>In combination effects</i>					
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Reefs [1170]	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a		x_a		x_a	x_a	x_a

Evidence supporting conclusions:

- a. No connectivity between Proposed Development and designated site (HRA Report (APP-491, Rev 002) Section 6.2.2).

HRA Screening Matrix 26: Bassurelle Sandbank SAC (pre-screened out for Annex I habitat features)

Name of European site and designation: Bassurelle Sandbank SAC																											
EU Code: UK0030368																											
Distance to Proposed Development: 60 km																											
European site features			Likely Effects of the Proposed Development																								
<i>Effect</i>	Increased SSC/smothering			Habitat disturbance/loss			Contaminated Sediments			Hydrodynamic changes			Invasive species			Pollution events			EMF/Temperature			<i>In combination effects</i>					
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Sandbanks (slightly covered by seawater all the time) [1110]	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a	x_a		x_a		x_a	x_a	x_a

Evidence supporting conclusions:

a. No connectivity between Proposed Development and designated site (HRA Report (APP-491, Rev 002) Section 6.2.2).

HRA Screening Matrix 27: Studland to Portland SAC (pre-screened out for Annex I habitat features)

Name of European site and designation: Studland to Portland SAC																								
EU Code: UK0030382																								
Distance to Proposed Development: 70 km																								
European site features			Likely Effects of the Proposed Development																					
<i>Effect</i>	Increased SSC/smothering			Habitat disturbance/loss			Contaminated Sediments			Hydrodynamic changes			Invasive species			Pollution events			EMF/Temperature			<i>In combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Sandbanks (slightly covered by seawater all the time) [1110]	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa

Evidence supporting conclusions:

a. No connectivity between Proposed Development and designated site (HRA Report (APP-491, Rev 002) Section 6.2.2).

HRA Screening Matrix 28: Littoral Cauchois SAC (pre-screened out for Annex I habitat features)

Name of European site and designation: Littoral Cauchois SAC																								
EU Code: FR2300139																								
Distance to Proposed Development: 52.7 km																								
European site features			Likely Effects of the Proposed Development																					
<i>Effect</i>	Increased SSC/smothering			Habitat disturbance/loss			Hydrodynamic changes			Invasive species			Pollution events			EMF/Temperature			<i>In combination effects</i>					
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Récifs (Reefs) [1170]	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa			
Perennial vegetation of stony banks [1220]																								
Vegetated sea cliffs Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]																								
Nutrient-poor shallow waters with aquatic vegetation on sandy plains Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflora</i>) [3110]																								
Calcium-rich nutrient-poor lakes, lochs and pools Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara spp.</i> [3140]																								
Naturally nutrient-rich lakes or lochs which are often dominated by pondweed Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation [3150]																								
Wet heathland with Dorset heath and cross-leaved heath Temperate Atlantic wet heaths with <i>Erica ciliaris</i> and <i>Erica tetralix</i> [4020]																								

Name of European site and designation: Littoral Cauchois SAC																					
EU Code: FR2300139																					
Distance to Proposed Development: 52.7 km																					
European site features	Likely Effects of the Proposed Development																				
Effect	Increased SSC/smothering			Habitat disturbance/loss			Hydrodynamic changes			Invasive species			Pollution events			EMF/Temperature			In combination effects		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Récifs (Reefs) [1170]	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa		Xa		Xa	Xa	Xa
Dry heaths European dry heaths [4030]																					
Purple moor-grass meadows <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410]																					
Tall herb communities <i>Hydrophilous</i> tall herb fringe communities of plains and of the montane to alpine levels [6430]																					
Lowland hay meadows Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>) [6510]																					
Hard-water springs depositing lime Petrifying springs with tufa formation (<i>Cratoneurion</i>) [7220]																					
Alkaline fens [7230]																					
Caves not open to the public [8310]																					
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) [91E0]																					
Atlantic acidophilous beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrublayer (<i>Quercion robori-petraeae</i> or <i>Ilici-Fagenion</i>) [9120]																					
<i>Asperulo-Fagetum</i> beech forests [9130]																					
<i>Tilio-Acerion</i> forests of slopes, screes and ravines [9180]																					
Old acidophilous oak woods with <i>Quercus robur</i> on sandy plains [9190]																					
Great crested newt (<i>Triturus cristatus</i>) [1166]																					

Evidence supporting conclusions:

- a. No connectivity between Proposed Development and designated site (HRA Report (APP-491, Rev 002) Section 6.2.2).

HRA Screening Matrix 29: Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC (pre-screened out for Annex I habitat features)

Name of European site and designation: Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC																					
EU Code: FR3102004																					
Distance to NSIP: 58.8 km																					
European site features			Likely Effects of the Proposed Development																		
Effect	Increased SSC/smothering			Habitat disturbance/loss			Hydrodynamic changes			Invasive species			Pollution events			EMF/Temperature			In combination effects		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Reefs (Récifs) [1170]	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa		xa		xa	xa	xa

Evidence supporting conclusions:

- a. No connectivity between Proposed Development and designated site (HRA Report (APP-491, Rev 002) Section 6.2.2).

HRA Screening Matrix 30: Southern North Sea SAC (pre-screened out for marine mammal features)

Name of European site and designation: Southern North Sea SAC																		
EU Code: UK0030395																		
Distance to NSIP: 137 km																		
European site features ^{†††}		Likely Effects of the Proposed Development																
Effect	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
1351 Harbour porpoise	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xa	xb	xb	xb
Supporting habitats (water column)										xc	xc	xc	xc	xc	xc	xc	xc	xc

Evidence supporting conclusions:

- a. The potential for connectivity of harbour porpoises which use the Southern North Sea SAC and the Proposed Development is considered to be negligible (see Appendix 2 of the HRA Report, APP-502). Therefore, the Southern North Sea SAC has been pre-screened out of the HRA (HRA Report (APP-491, Rev 002) Section 6.2.4, Table 6.5).
- b. Because the potential for connectivity of harbour porpoises which use the Southern North Sea SAC and the Proposed Development is considered to be negligible, there is no potential for the Proposed Development to contribute to any potential in combination effects on harbour porpoises which are a qualifying feature of the Southern North Sea SAC (HRA Report (APP-491, Rev 002) Section 8.2.3).
- c. The Proposed Development is too far from the Southern North Sea SAC (137 km) for there to be any potential effect on the supporting habitat (water column) within the SAC. Because there is no effect pathway there is no potential for LSE either alone or in combination (HRA Report (APP-491, Rev 002) Section 6.4.4).

^{†††} As per <http://jncc.defra.gov.uk/protectedsites/sacselection/n2kforms/UK0030395.pdf> [accessed 11/06/2019]

HRA Screening Matrix 31: The Wash and North Norfolk Coast SAC (pre-screened out for marine mammal features)

Name of European site and designation: The Wash and North Norfolk Coast SAC																		
EU Code: UK0017075																		
Distance to Proposed Development: 370 km																		
European site features ^{##}	Likely Effects of the Proposed Development																	
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
1365 Harbour seal	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xb	Xb	Xb
Supporting habitats (water column)										Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc
1355 Otter																		
1110 Sandbanks which are slightly covered by sea water all the time																		
1140 Mudflats and sandflats not covered by seawater at low tide																		
1160 Large shallow inlets and bays																		
1170 Reefs																		
1310 Salicornia and other annuals colonising mud and sand																		
1330 Atlantic salt meadows																		
1420 Mediterranean and thermo-Atlantic halophilous scrubs																		
1150 Coastal lagoons																		

Evidence supporting conclusions:

- The potential for connectivity of harbour seals which use The Wash and North Norfolk Coast SAC and the Proposed Development is considered to be negligible (see Appendix 2 of the HRA Report ,APP-502). Therefore, The Wash and North Norfolk Coast SAC has been pre-screened out of the HRA (HRA Report (APP-491, Rev 002) Section 6.2.4, Table 6.5).
- Because the potential for connectivity of harbour seals which use The Wash and North Norfolk Coast SAC and the Proposed Development is considered to be negligible, there is no potential for the Proposed Development to contribute to any potential in combination effects on harbour seals which are a qualifying feature of The Wash and North Norfolk Coast SAC (HRA Report (APP-491, Rev 002) Section 8.2.3).
- The Proposed Development is too far from The Wash and North Norfolk Coast SAC (370 km) for there to be any potential effect on the supporting habitat (water column) within the SAC. Because there is no effect pathway there is no potential for LSE either alone or in combination (HRA Report (APP-491, Rev 002) Section 6.4.4).

^{##} As per <http://jncc.defra.gov.uk/ProtectedSites/SACselection/sac.asp?EUcode=UK0017075> [accessed 11/06/2019]

HRA Screening Matrix 32: Pembrokeshire Marine SAC (pre-screened out for marine mammal features)

Name of European site and designation: Pembrokeshire Marine SAC																		
EU Code: UK0013116																		
Distance to Proposed Development: 542 km																		
European site features ^{§§§}	Likely Effects of the Proposed Development																	
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
1364 Grey seal	x	a	x	x	a	x	x	a	x	x	a	x	x	a	x	x	b	x
Supporting habitats (water column)										x	c	x	x	c	x	x	c	x
1355 Otter																		
1095 Sea lamprey																		
1099 River lamprey																		
1102 Allis shad																		
1103 Twaite shad																		
1441 Shore dock																		
1130 Estuaries																		
1160 Large shallow inlets and bays																		
1170 Reefs																		
1110 Sandbanks which are slightly covered by sea water all the time																		
1140 Mudflats and sandflats not covered by seawater at low tide																		
1150 Coastal lagoons																		
1330 Atlantic salt meadows																		
8330 Submerged or partially submerged sea caves																		

Evidence supporting conclusions:

- a. The potential for connectivity of grey seals which use the Pembrokeshire Marine SAC and the Proposed Development is considered to be negligible (see Appendix 2 of the HRA Report, APP-502) Therefore, the Pembrokeshire Marine SAC has been pre-screened out of the HRA (HRA Report (APP-491, Rev 002) Section 6.2.4, Table 6.5).
- b. Because the potential for connectivity of grey seals which use the Pembrokeshire Marine SAC and the Proposed Development is considered to be negligible, there is no potential for the Proposed Development to contribute to any potential in combination effects on grey seals which are a qualifying feature of the Pembrokeshire Marine SAC (HRA Report (APP-491, Rev 002) Section 8.2.3).
- c. The Proposed Development is too far from the Pembrokeshire Marine SAC (542 km) for there to be any potential effect on the supporting habitat (water column) within the SAC. Because there is no effect pathway there is no potential for LSE either alone or in combination (HRA Report (APP-491, Rev 002) Section 6.4.4).

^{§§§} As per <http://jncc.defra.gov.uk/ProtectedSites/SACselection/sac.asp?EUcode=UK0013116> [accessed 11/06/2019]

HRA Screening Matrix 33: Cardigan Bay SAC (pre-screened out for marine mammal features)

Name of European site and designation: Cardigan Bay SAC																		
EU Code: UK0012712																		
Distance to Proposed Development: 618 km																		
European site features****	Likely Effects of the Proposed Development																	
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
1349 Bottlenose dolphin	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xa	Xb	Xb	Xb
1364 Grey seal	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc	Xc
Supporting habitats (water column)										Xd	Xd	Xd	Xd	Xd	Xd	Xd	Xd	Xd
1095 Sea lamprey																		
1099 River lamprey																		
1110 Sandbanks which are slightly covered by sea water all the time																		
1170 Reefs																		
8330 Submerged or partially submerged sea caves																		

Evidence supporting conclusions:

- The potential for connectivity of bottlenose dolphins which use the Cardigan Bay SAC and the Proposed Development is considered to be negligible (see Appendix 2 of the HRA Report, APP-502). Therefore, the Cardigan Bay SAC has been pre-screened out of the HRA (HRA Report (APP-491, Rev 002) Section 6.2.4, Table 6.5).
- Because the potential for connectivity of bottlenose dolphins which use the Cardigan Bay SAC and the Proposed Development is considered to be negligible, there is no potential for the Proposed Development to contribute to any potential in combination effects on bottlenose dolphins which are a qualifying feature of the Cardigan Bay SAC (HRA Report (APP-491, Rev 002) Section 8.2.3).
- The potential for connectivity of grey seals which use the Cardigan Bay SAC and the Proposed Development is considered to be negligible because the Proposed Development does not fall within the likely foraging range of grey seals which are a feature of the Cardigan Bay SAC (none of the grey seals using the Welsh coast were tracked further east into the Channel than the area off Torquay; see Appendix 2 of the HRA Report APP-491, Rev 0023.2). There is therefore no potential for the Proposed Development to contribute to any potential alone or in combination effects on grey seals which are a qualifying feature of the Cardigan Bay SAC (HRA Report (APP-491, Rev 002) Section 8.2.3).
- The Proposed Development is too far from the Cardigan Bay SAC (618 km) for there to be any potential effect on the supporting habitat (water column) within the SAC. Because there is no effect pathway there is no potential for LSE either alone or in combination (HRA Report (APP-491, Rev 002) Section 6.4.4).

**** As per <http://jncc.defra.gov.uk/ProtectedSites/SACselection/sac.asp?EUcode=UK0012712> [accessed 11/06/2019]

Integrity Matrices - Potential Effects

Potential effects upon the European site(s)^{††††} which are considered within the submitted HRA Report (APP-491, Rev 002) are provided in the table below. Effects have been grouped where appropriate for ease of presentation.

Effects considered within the integrity matrices for marine ornithology

#The information in this column relates to all phases of the project (i.e. construction, operation and decommissioning) unless otherwise stated.

Designation	Effects described in submission information#	Effects in screening matrices as
UK sites identified: <ul style="list-style-type: none"> • Solent and Dorset Coast SPA • Chichester and Langstone Harbours SPA. 	Alone: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects 	Alone: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects
	In combination: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects 	In combination: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects

Effects considered within the integrity matrices for Annex I Habitat Features

#The information in this column relates to all phases of the project (i.e. construction, operation and decommissioning) unless otherwise stated.

Designation	Effects described in submission information#	Effects in screening matrices as
UK sites identified: <ul style="list-style-type: none"> • Solent Maritime SAC • South Wight Maritime SAC 	Alone: <ul style="list-style-type: none"> • Deposition of Sediment (Smothering) • Increased SSC • Pollution • Invasive Species 	Alone: <ul style="list-style-type: none"> • Increased SSC/smothering • Pollution • Invasive Species
	In combination: <ul style="list-style-type: none"> • Deposition of Sediment (Smothering) • Increased SSC • Pollution • Invasive Species 	In combination: <ul style="list-style-type: none"> • Increased SSC/smothering • Pollution • Invasive Species

Effects considered within the integrity matrices for Fish

#The information in this column relates to all phases of the project (i.e. construction, operation and decommissioning) unless otherwise stated.

Designation	Effects described in submission information#	Effects in screening matrices as
UK sites identified: <ul style="list-style-type: none"> • River Itchen SAC • River Avon SAC 	Alone: <ul style="list-style-type: none"> • Increased SSC • Pollution 	Alone: <ul style="list-style-type: none"> • Increased SSC • Pollution

^{††††} As defined in Advice Note 10.

Designation	Effects described in submission information#	Effects in screening matrices as
	In combination: <ul style="list-style-type: none"> Increased SSC Pollution 	In combination: <ul style="list-style-type: none"> Increased SSC Pollution
<ul style="list-style-type: none"> River Axe SAC Plymouth Sounds and Estuaries SAC 	Alone: <ul style="list-style-type: none"> Pollution 	Alone: <ul style="list-style-type: none"> Pollution
	In combination: <ul style="list-style-type: none"> Pollution 	In combination: <ul style="list-style-type: none"> Pollution
French sites identified: <ul style="list-style-type: none"> Littoral Cauchois SAC Estuaires et Littoral Picards (Baies de Somme et d'Authie) SAC Baie de Canche et Couloir des Trois Estuaires SAC Baie de Seine Orientale SAC Estuaire de la Seine SAC 	Alone: <ul style="list-style-type: none"> Pollution 	Alone: <ul style="list-style-type: none"> Pollution
	In combination: <ul style="list-style-type: none"> Pollution 	In combination: <ul style="list-style-type: none"> Pollution

Effects considered within the integrity matrices for marine mammals

#The information in this column relates to all phases of the project (i.e. construction, operation and decommissioning) unless otherwise stated.

Designation	Effects described in submission information#	Effects in integrity matrices as
French sites identified: <ul style="list-style-type: none"> Littoral Cauchois SAC Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC Baie de Canche et couloir des trois estuaires SAC Estuaires et littoral picards (baies de Somme et d'Authie) SAC Estuaire de la Seine SAC Baie de Seine Orientale SAC Récifs Gris-Nez Blanc-Nez SAC 	<ul style="list-style-type: none"> Pollution 	<ul style="list-style-type: none"> Pollution

Effects considered within the integrity matrices for onshore ecology

The information in this column relates to all phases of the project (i.e. construction, operation and decommissioning) unless otherwise stated.

Designation	Effects described in submission information#	Effects in screening matrices as
UK sites identified: Chichester and Langstone Harbours SPA. Portsmouth Harbour SPA	Alone: <ul style="list-style-type: none"> • Disturbance & displacement • Accidental spills • Litter 	Alone: <ul style="list-style-type: none"> • Disturbance & displacement • Accidental spills • Litter
	In combination: <ul style="list-style-type: none"> • Disturbance & displacement • Accidental spills • Litter 	In combination: <ul style="list-style-type: none"> • Disturbance & displacement • Indirect effects

STAGE 2: INTEGRITY MATRICES

The UK European sites for which a LSE has been identified are as follows:

- Solent and Dorset Coast SPA
- Chichester and Langstone Harbours SPA
- Portsmouth Harbour SPA
- Solent and Southampton Water SPA
- Pagham Harbour SPA
- Solent Maritime SAC
- South Wight Maritime SAC
- River Itchen SAC
- River Avon SAC
- River Axe SAC
- Plymouth Sound and Estuaries SAC

The transboundary European sites for which LSE has been identified are as follows:

- Littoral Cauchois SAC
- Littoral Seino-Marin SPA
- Estuaires et Littoral Picards (Baies de Somme et d'Authie) SAC
- Baie de Canche et Couloir des Trois Estuaires SAC
- Baie de Seine Orientale SAC
- Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC
- Estuaire de la Seine SAC
- Récifs Gris-Nez Blanc-Nez SAC

Evidence for the conclusions reached in integrity is detailed within the footnotes to the matrices below.

Matrix Key:

✓ = Adverse effect on site integrity **cannot** be excluded

✗ = Adverse effect on site integrity **can** be excluded

C = construction

O = operation (and repair/maintenance)

D = decommissioning

B = breeding

W = wintering/non-breeding

P = passage

Where effects are not applicable to a particular feature they are **greyed out**.

HRA Integrity Matrix 1A: Solent and Dorset Coast SPA (Marine Ornithology)

Name of European Site: Solent and Dorset Coast SPA (Marine Ornithology)																		
Distance to Proposed Development: 0.0 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Little tern (B)	x_a	x_a	x_a	x_b	x_b	x_b							x_c	x_c	x_c	x_c	x_c	x_c
Common tern (B)				x_b	x_b	x_b							x_c	x_c	x_c	x_c	x_c	x_c
Sandwich tern (B)				x_b	x_b	x_b							x_c	x_c	x_c	x_c	x_c	x_c
Supporting habitat (water column)				x_b	x_b	x_b							x_c	x_c	x_c	x_c	x_c	x_c

Evidence supporting conclusions:

- HDD works in Langstone Harbour will occur c.4 km from the closest breeding colony on Baker's Island, with little terns often foraging within 1 km of their nest site. Noise and visual disturbance associated with construction and repair/maintenance works will not be noticeable above baseline levels of disturbance within Langstone Harbour. Whilst considered unlikely, should little terns be temporarily disturbed from foraging habitat in the vicinity of the landfall within Langstone Harbour, other equivalent shallow water foraging sites are present within their maximum foraging range. Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.4, Tables 10.5 and 10.6).
- Where the cable corridor crosses Langstone Harbour, HDD will be used. The exit point is expected to be onshore, thus an increase in SSC and any resultant smothering and/or reduced dissolved oxygen ('DO') is not predicted to affect key prey species present in the water column at Langstone Harbour. Outside of Langstone Harbour, the permanent loss of fish, shellfish and benthic habitat as a result of non-burial cable protection is not predicted to affect key prey species since these measures will be limited in spatial extent. Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.4, Tables 10.5 and 10.6).
- Routine mitigation measures of standard best practice in terms of waste management, pollution prevention measures and strict navigational protocols will prevent these events from and therefore there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.4, Tables 10.5 and 10.6).

HRA Integrity Matrix 1B: Solent and Dorset Coast SPA (Marine Ornithology – In combination)

Name of European Site: Solent and Dorset Coast SPA (Marine Ornithology)																		
Distance to Proposed Development: 0.0 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Little tern (B)	x_a	x_a	x_a	x_b	x_b	x_b							x_c	x_c	x_c	x_c	x_c	x_c
Common tern (B)				x_b	x_b	x_b							x_c	x_c	x_c	x_c	x_c	x_c
Sandwich tern (B)				x_b	x_b	x_b							x_c	x_c	x_c	x_c	x_c	x_c
Supporting habitat (water column)				x_b	x_b	x_b							x_c	x_c	x_c	x_c	x_c	x_c

Evidence supporting conclusions:

- HDD works in Langstone Harbour will occur c.4 km from the closest breeding colony on Baker's Island, with little terns often foraging within 1 km of their nest site. Little terns are known to breed and forage within Chichester and Langstone Harbours despite baseline levels of anthropogenic noise and visual disturbance. Disturbance associated with construction and repair/maintenance works will not be noticeable above baseline levels of disturbance within Langstone Harbour. Whilst considered unlikely, should little terns be temporarily disturbed from foraging habitat in the vicinity of the landfall within Langstone Harbour, other equivalent shallow water foraging sites are present within their maximum foraging range. Therefore, there is no adverse effect from disturbance and

displacement. When this effect is considered in combination with potential effects resulting from other relevant plans or projects (Table 4 of Appendix 3) it is concluded that there is no potential for adverse effects on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.4, Table 10.5 and 10.6).

- b. Where the cable corridor crosses Langstone Harbour, HDD will be used. The exit point is expected to be onshore, thus an increase in SSC and any resultant smothering and/or reduced dissolved oxygen ('DO') is not predicted to affect key prey species present in the water column at Langstone Harbour. Outside of Langstone Harbour, the permanent loss of fish, shellfish and benthic habitat as a result of non-burial cable protection is not predicted to affect key prey species since these measures will be limited in spatial extent (0.7 km² in total). When this effect is considered in combination with potential effects resulting from other relevant plans or projects (Table 4 of Appendix 3) it is concluded that there is no potential for adverse effects on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.4, Tables 10.5 and 10.6).
- c. Routine mitigation measures of standard best practice in terms of waste management, pollution prevention measures and strict navigational protocols will prevent these events occurring and therefore there will be no adverse effect on site integrity. Similar best practice measures are employed for the other plans and projects identified which could contribute to in combination effects. When these effects are considered in combination with potential effects resulting from other relevant plans or projects (Table 4 of Appendix 3) it is concluded that there is no potential for adverse effects on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.4, Tables 10.5 and 10.6).

HRA Integrity Matrix 2A: Chichester and Langstone Harbours SPA (Marine Ornithology)

Name of European Site: Chichester and Langstone Harbours SPA (Marine Ornithology)																		
Distance to Proposed Development: 0.1 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)																		
Shelduck (W)																		
Shoveler (W)																		
Wigeon (W)																		
Pintail (W)																		
Teal (W)																		
Red-breasted merganser (W)	x a	x a	x a	x b	x b	x b							x d	x d	x d	x d	x d	x d
Grey plover (W)																		
Ringed plover (W)																		
Curlew (W)																		
Bar-tailed godwit (W)																		
Turnstone (W)																		
Sanderling (W)																		
Dunlin (W)																		
Redshank (W)																		
Sandwich tern (B)				x b	x b	x b							x d	x d	x d	x d	x d	x d
Little tern (B)	x c	x c	x c	x b	x b	x b							x d	x d	x d	x d	x d	x d
Common tern (B)				x b	x b	x b							x d	x d	x d	x d	x d	x d
Supporting habitat (water column)				x b	x b	x b							x d	x d	x d	x d	x d	x d
Supporting habitat Coastal Lagoons																		
Supporting habitat Coastal reedbeds																		
Supporting habitat Freshwater and coastal grazing marsh																		

Name of European Site: Chichester and Langstone Harbours SPA (Marine Ornithology)																		
Distance to Proposed Development: 0.1 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Supporting habitat Salicornia and other annuals colonising mud and sand																		
Supporting habitat Atlantic salt meadows																		
Supporting habitat Spartina swards																		
Supporting habitat Intertidal seagrass beds																		
Supporting habitat Intertidal rock																		
Supporting habitat Intertidal coarse sediment																		
Supporting habitat Intertidal mixed sediment																		
Supporting habitat Intertidal mud																		
Supporting habitat Intertidal sand and muddy sand																		
Supporting habitat Subtidal coarse sediment																		
Supporting habitat Subtidal mixed sediment																		
Supporting habitat Subtidal mud																		
Supporting habitat Subtidal sand																		

Evidence supporting conclusions (also see HRA Report Section 10.4):

- a. HDD works in Langstone Harbour will occur >4 km from the closest wintering site at Farlington Marshes. Noise and visual disturbance associated with construction and maintenance/repair works will not be noticeable above baseline levels of disturbance within Langstone Harbour. Whilst considered unlikely, should red-breasted merganser be temporarily disturbed from their wintering sites within Langstone Harbour, other equivalent foraging and roosting sites are present in Chichester Harbour. Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.1 and 10.3).
- b. Where the cable corridor crosses Langstone Harbour, HDD will be used. The exit point is expected to be onshore, thus an increase in SSC and any resultant smothering and/or reduced dissolved oxygen ('DO') is not predicted to affect key prey species present in the water column at Langstone Harbour. Outside of Langstone Harbour, the permanent loss of fish, shellfish and benthic habitat as a result of non-burial cable protection is not predicted to affect key prey species since these measures will be limited in spatial extent. Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.1 and 10.3).
- c. HDD works in Langstone Harbour will occur c.4 km from the closest breeding colony on Baker's Island, with little terns often foraging within 1 km of their nest site. Noise and visual disturbance associated with construction and repair/maintenance works will not be noticeable above baseline levels of disturbance within Langstone Harbour. Whilst considered unlikely, should little terns be temporarily disturbed from foraging habitat in the vicinity of the landfall within Langstone Harbour, other equivalent shallow water foraging sites are present within their maximum foraging range. Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.1 and 10.3).
- d. Routine mitigation measures of standard best practice in terms of waste management, pollution prevention measures and strict navigational protocols will prevent these events occurring and therefore there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.1 and 10.3).

HRA Integrity Matrix 2B: Chichester and Langstone Harbours SPA (Marine Ornithology – In Combination)

Name of European Site: Chichester and Langstone Harbours SPA (Marine Ornithology)																		
Distance to Proposed Development: 0.1 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)																		
Shelduck (W)																		
Shoveler (W)																		
Wigeon (W)																		
Pintail (W)																		
Teal (W)																		
Red-breasted merganser (W)	x a	x a	x a	x b	x b	x b							x d	x d	x d	x d	x d	x d
Grey plover (W)																		
Ringed plover (W)																		
Curlew (W)																		
Bar-tailed godwit (W)																		
Turnstone (W)																		
Sanderling (W)																		
Dunlin (W)																		
Redshank (W)																		
Sandwich tern (B)													x d	x d	x d	x d	x d	x d
Little tern (B)	x c	x c	x c	x b	x b	x b							x d	x d	x d	x d	x d	x d
Common tern (B)													x d	x d	x d	x d	x d	x d
Supporting habitat (water column)				x b	x b	x b							x d	x d	x d	x d	x d	x d
Supporting habitat Coastal Lagoons																		
Supporting habitat Coastal reedbeds																		
Supporting habitat Freshwater and coastal grazing marsh																		
Supporting habitat Salicornia and other annuals colonising mud and sand																		
Supporting habitat Atlantic salt meadows																		
Supporting habitat Spartina swards																		
Supporting habitat Intertidal seagrass beds																		
Supporting habitat Intertidal rock																		
Supporting habitat Intertidal coarse sediment																		
Supporting habitat Intertidal mixed sediment																		
Supporting habitat Intertidal mud																		
Supporting habitat Intertidal sand and muddy sand																		
Supporting habitat Subtidal coarse sediment																		

Name of European Site: Chichester and Langstone Harbours SPA (Marine Ornithology)																		
Distance to Proposed Development: 0.1 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Supporting habitat Subtidal mixed sediment																		
Supporting habitat Subtidal mud																		
Supporting habitat Subtidal sand																		

Evidence supporting conclusions (also see HRA Report Section 10.4):

- a. HDD works in Langstone Harbour will occur >4 km from the closest wintering site at Farlington Marshes. Red-breasted mergansers are known to roost and forage within Chichester and Langstone Harbours despite baseline levels of anthropogenic noise and visual disturbance. Disturbance associated with construction and maintenance/repair works will not be noticeable above baseline levels of disturbance within Langstone Harbour. Whilst considered unlikely, should red-breasted merganser be temporarily disturbed from their wintering sites within Langstone Harbour, other equivalent foraging and roosting sites are present in Chichester Harbour. Therefore, there is no adverse effect from disturbance and displacement. When this effect is considered in combination with potential effects resulting from other relevant plans or projects (Table 4 of Appendix 3) it is concluded that there is no potential for adverse effects on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.1 and 10.3).
- b. Where the cable corridor crosses Langstone Harbour, HDD will be used. The exit point is expected to be onshore, thus an increase in SSC and any resultant smothering and/or reduced dissolved oxygen ('DO') is not predicted to affect key prey species present in the water column at Langstone Harbour. Outside of Langstone Harbour, the permanent loss of fish, shellfish and benthic habitat as a result of non-burial cable protection is not predicted to affect key prey species since these measures will be limited in spatial extent (0.7 km² in total). When this effect is considered in combination with potential effects resulting from other relevant plans or projects (Table 4 of Appendix 3) it is concluded that there is no potential for adverse effects on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.1 and 10.3).
- c. HDD works in Langstone Harbour will occur c.4 km from the closest breeding colony on Baker's Island, with little terns often foraging within 1 km of their nest site. Little terns are known to breed and forage within Chichester and Langstone Harbours despite baseline levels of anthropogenic noise and visual disturbance. Disturbance associated with construction and repair/maintenance works will not be noticeable above baseline levels of disturbance within Langstone Harbour. Whilst considered unlikely, should little terns be temporarily disturbed from foraging habitat in the vicinity of the landfall within Langstone Harbour, other equivalent shallow water foraging sites are present within their maximum foraging range. Therefore, there is no adverse effect from disturbance and displacement. When this effect is considered in combination with potential effects resulting from other relevant plans or projects (Table 4 of Appendix 3) it is considered that there is no potential for adverse effects on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.1 and 10.3).
- d. Routine mitigation measures of standard best practice in terms of waste management, pollution prevention measures and strict navigational protocols will prevent these events occurring and therefore will be no adverse effect on site integrity. Similar best practice measures are employed for the other plans and projects identified which could contribute to in combination effects. When these effects are considered in combination with potential effects resulting from other relevant plans or projects (Table 4 of Appendix 3) it is concluded that there is no potential for adverse effects on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.1 and 10.3).

HRA Integrity Matrix 2C: Chichester and Langstone Harbours SPA (Onshore Ecology)

Name of European Site: Chichester and Langstone Harbours SPA (Onshore Ecology)																					
Distance to Proposed Development: 0.1 km																					
European site feature	Adverse Effect on Integrity from the Proposed Development (Alone)																				
	Disturbance & displacement			Visual disturbance			Light pollution			Indirect effects			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)	x _a		x _a													x _d	x _d	x _d	x _e	x _e	x _e
Shelduck (W)	x _b		x _b													x _d	x _d	x _d	x _e	x _e	x _e
Shoveler (W)	x _b		x _b													x _d	x _d	x _d	x _e	x _e	x _e
Wigeon (W)	x _b		x _b													x _d	x _d	x _d	x _e	x _e	x _e
Pintail (W)	x _b		x _b													x _d	x _d	x _d	x _e	x _e	x _e
Teal (W)	x _b		x _b													x _d	x _d	x _d	x _e	x _e	x _e
Red-breasted merganser (W)																					
Grey plover (W)	x _b		x _b													x _d	x _d	x _d	x _e	x _e	x _e
Ringed plover (W)																x _d	x _d	x _d	x _e	x _e	x _e
Curlew (W)	x _b		x _b													x _d	x _d	x _d	x _e	x _e	x _e
Bar-tailed godwit (W)	x _b		x _b													x _d	x _d	x _d	x _e	x _e	x _e
Turnstone (W)																x _d	x _d	x _d	x _e	x _e	x _e
Sanderling (W)																x _d	x _d	x _d	x _e	x _e	x _e
Dunlin (W)																x _d	x _d	x _d	x _e	x _e	x _e
Redshank (W)	x _b		x _b													x _d	x _d	x _d	x _e	x _e	x _e
Sandwich tern (B)																x _d	x _d	x _d	x _e	x _e	x _e
Waterfowl assemblage (W)			x _a													x _d	x _d			x _e	
Little tern (B)																x _d	x _d	x _d	x _e	x _e	x _e
Common tern (B)																x _d	x _d	x _d	x _e	x _e	x _e
Supporting habitat: Freshwater and coastal grazing marsh										x _c		x _c				x _d	x _d	x _d	x _e	x _e	x _e

Evidence supporting conclusions:

- a. Effects of the construction stage on Chichester and Langstone Harbour SPA and the dark-bellied brent goose and the waterfowl assemblage features will be avoided by restricting works within the winter season, defined as October to March (the period when SPA birds such as dark-bellied brent goose arrive from their breeding grounds (Snow and Perrins, 1998). A detailed overview of the working restrictions were provided in Chapter 16: Onshore Ecology (APP-131) and Appendix 16.14: Winter Working Restriction for Features of Chichester & Langstone Harbours SPA (APP-422) and then subject to revisions following consultation with Natural England which are captured in the updated Outline Onshore Construction Environmental Monitoring Plan (OOCEMP; APP-505 Rev002). Adoption of Principle 1 (construction works cannot take place in SWBGS) will offset direct effects on those SWBGS sites that lie within the Order Limits as detailed above (as these sites will not be subject to works in the winter period when they are used by SPA birds). Adoption of Principle 6 includes the consideration of both construction noise from trenching / road saw activities and HDD. Trenching / road saw noise at 69dbAmax leads to overlap of varying extents, with fourteen SWBGS sites. Construction work at twelve SWBGS sites is restricted during October – March on this basis. In accordance with the requirements of the OOCEMP, screening at least 2 m high around the perimeter of the HDD compounds is required for the purpose of noise mitigation. With the exception of HDD-3 and HDD-6, HDD works will not impact SWBGS following the application of screening which will prevent any noise effects of over 69 dB reaching SWBGS sites. HDD-3 noise levels will not

extend beyond the site compound and therefore only impact hardstanding habitat and not effecting the integrity of the SWBGS. Noise levels from HDD-6 marginally overlap with the P23A SWBGS. However, as the HDD compound lies within the SWBGS, it is already subject to Principle 1 so that winter work (October to March inclusive) is restricted. Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.2 and 10.4).

- b.** Effects of the construction stage on Chichester and Langstone Harbour SPA and its waterbird features will be avoided by restricting works within the winter season, defined as October to March (the period when SPA birds arrive from their breeding grounds (Snow and Perrins, 1998). Adoption of the Principle 6 which states that wherever possible, percussive piling or works with heavy machinery (i.e. plant resulting in a noise level in excess of 69dbAmax – measured at the sensitive receptor) should be avoided during the bird overwintering period has been undertaken with regards to trenching / road saw and HDD works. All species were found to be restricted to intertidal habitat during baseline surveys of the Proposed Development. Noise effects from both trenching / road saw and HDD works overlaps at 69dbAmax is extremely limited with regards to intertidal habitat of the SPA. Trenching / road saw construction is restricted along Eastern Road because of overlap with SWBGS sites so this section will also not provide any disturbance to adjacent intertidal habitat. The only other section of the route that is restricted by Principle 6 is the section of the Onshore Cable Route from Milton Locks north to the P23B SWBGS Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.2 and 10.4).
- c.** No habitat within the SPA site will be lost on either a permanent or temporary basis as a result of onshore construction / decommissioning activities. Several SWBGS sites do however lie within the Order Limits, namely: P08A, P11, P23A, P23B and P23R. Restoration measures will be implemented which require completion and grass sward re-established to provide a suitable food resource by October when brent geese return to the Solent to winter. The choice of restoration approach is primarily dependent on the time available within the summer growing season for implementation. Re-seeding is not likely to be the optimal technique after May so that for any restoration works after this month, re-turfing would be implemented. These measures including details of site preparation, establishment and aftercare are provided in the revised Onshore Outline CEMP (APP-505 Rev002). P211, P23A and P23 R will be subject to re-turfing restoration within the appropriate timescales to allow reestablishment prior to October. P23B will be subject to either re-seeding or re-turfing. Components of P08A will not be restored until the month of October. However, no construction activities will take place on SWBGS sites in the non-breeding winter season so that visual and noise disturbance associated with these will not impact brent geese. While no data has been located that shows arrival dates at Farlington or the wider SPA it can be expected that smaller numbers will be present in October (and indeed March during their departure). National census data gathered by the British Trust for Ornithology (BTO) through their Wetland Bird Survey (WeBS) Scheme shows that numbers present in England during October are approximately 30% of those during the peak month of January. Additional important factors to consider include the amount of habitat that will require restoration in October and the proportion that it is of the SWBGS sites and the wider network. The October restoration area accounts for: 12 % of the P08A SWBGS, 1.2 % of SWBGS core sites and 0.2 % of the entire SWBGS network. On this basis, it is determined that the restoration of 1.7 ha during the month of October would not impair the SWBGS network and specifically it would not impact the non-breeding brent goose population. Irrespective of the temporary unavailability of 12% of the SWBGS, brent geese would not be disturbed and therefore the functionality of the P08A SWBGS would not be lost due to the extensive remaining habitat. The temporary habitat loss accounts for just 1.2% of the SWBGS core sites and 0.2% of the SWBGS network. The effect on the supporting habitat is therefore considered to be of a de minimis nature in that no perceptible change to baseline conditions will occur. Brent geese will still be able to utilise the majority of P08A SWBGS, which in itself forms just a small component of the SWBGS network available. This assessment is further supported by the fact that the loss of habitat will be temporary, covering at most 17% of a single non-breeding season and during a period when the majority of the Solent brent goose population would not be present. The P08A SWBGS will be restored in its entirety for in advance of when the peak numbers of geese are present in the region. Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.2 and 10.4).
- d.** Routine mitigation measures of standard best practice in terms of pollution prevention measures (see Onshore Outline Construction Environmental Management Plan ('CEMP') (APP-505 Rev002)) will make the likelihood of these events occurring highly unlikely and therefore not resulting in an adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.2 and 10.4).
- e.** Routine mitigation measures of standard best practice in terms of waste management (see Onshore Outline CEMP; APP-505 Rev002) will make the likelihood of these events occurring highly unlikely and therefore not resulting in an adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.2 and 10.4).

HRA Integrity Matrix 2D: Chichester and Langstone Harbours SPA (Onshore Ecology – In Combination)

Name of European Site: Chichester and Langstone Harbours SPA (Onshore Ecology)																								
Distance to Proposed Development: 0.1 km																								
European site feature	Adverse Effect on Integrity from the Proposed Development (<u>In combination</u>)																							
	Disturbance & displacement			Visual disturbance			Light pollution			Indirect effects			INIS			Accidental spills			Litter					
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D			
Dark-bellied brent goose (W)	x	a																	x	d	x	x	e	x
Shelduck (W)	x	b																	x	d	x	x	e	x
Shoveler (W)	x	b																	x	d	x	x	e	x
Wigeon (W)	x	b																	x	d	x	x	e	x
Pintail (W)	x	b																	x	d	x	x	e	x
Teal (W)	x	b																	x	d	x	x	e	x
Red-breasted merganser (W)																								
Grey plover (W)	x	b																	x	d	x	x	e	x
Ringed plover (W)																			x	d	x	x	e	x
Curlew (W)	x	b																	x	d	x	x	e	x
Bar-tailed godwit (W)	x	b																	x	d	x	x	e	x
Turnstone (W)																			x	d	x	x	e	x
Sanderling (W)																			x	d	x	x	e	x
Dunlin (W)																			x	d	x	x	e	x
Redshank (W)	x	b																	x	d	x	x	e	x
Sandwich tern (B)																			x	d	x	x	e	x
Waterfowl assemblage (W)			x	a															x	d			x	e
Little tern (B)																			x	d	x	x	e	x
Common tern (B)																			x	d	x	x	e	x
Supporting habitat: Freshwater and coastal grazing marsh										x	c		x	c					x	d	x	x	e	x

Evidence supporting conclusions:

- a. No construction works will occur in SWBGS sites that lie within the Proposed Developments Order Limits during the winter period October – March, while works that have the potential to produce noise impacts of over 69dbAmax in either SWBGS or the SPA will be restricted during October - March. Potential effects resulting from the limited plans or projects which have temporal and spatial overlap with the Proposed Development (Table 5 within Appendix 3 of the HRA Report APP-491, Rev 002-) are considered to be localised and temporary. The North Portsea Island Coastal Flood Defence Scheme, Phase 4B - Coastline Between Milton Common and Kendall’s Wharf Eastern Road (19/01368/FUL) includes a full winter working restriction (October – March) so will not disturb dark-bellied brent goose. Therefore, there is no in combination adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.2 and 10.4).
- b. Effects of the construction stage on Chichester and Langstone Harbour SPA and its waterbird features will be avoided by restricting works within the winter season, defined as October to March (the period when SPA birds arrive from their breeding grounds (Snow and Perrins, 1998). Adoption of the Principle 6 which states that wherever possible, percussive piling or works with heavy machinery

(i.e. plant resulting in a noise level in excess of 69dbAmax – measured at the sensitive receptor) should be avoided during the bird overwintering period has been undertaken with regards to trenching / road saw and HDD works. All species were found to be restricted to intertidal habitat during baseline surveys of the Proposed Development. Noise effects from both trenching / road saw and HDD works overlaps at 69dbAmax is extremely limited with regards to intertidal habitat of the SPA. Trenching / road saw construction is restricted along Eastern Road because of overlap with SWBGS sites so this section will also not provide any disturbance to adjacent intertidal habitat. The only other section of the route that is restricted by Principle 6 is the section of the Onshore Cable Route from Milton Locks north to the P23B SWBGS Potential effects resulting from the limited plans or projects which have temporal and spatial overlap with the Proposed Development (Appendices 16.15 and 16.16 of the ES) are considered to be localised and temporary. The North Portsea Island Coastal Flood Defence Scheme, Phase 4B - Coastline Between Milton Common and Kendall's Wharf Eastern Road (19/01368/FUL) includes a full winter working restriction (October – March) so will not disturb features of the SPA. Therefore, there is no in combination adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.2 and 10.4).

- c. No habitat within the SPA/Ramsar site will be lost on either a permanent or temporary basis as a result of onshore construction / decommissioning activities. Several SWBGS sites do however lie within the Order Limits, namely: P08A, P11, P23A, P23B and P23R. Restoration measures will be implemented which require completion and grass sward re-established to provide a suitable food resource by October when brent geese return to the Solent to winter. Components of P08A will not be restored until the month of October. The October restoration area accounts for: 12 % of the P08A SWBGS, 1.2 % of SWBGS core sites and 0.2 % of the entire SWBGS network. On this basis, it is determined that the restoration of 1.7 ha during the month of October would not impair the SWBGS network and specifically it would not impact the non-breeding brent goose population. The effect on the supporting habitat is therefore considered to be of a de minimis nature in that no perceptible change to baseline conditions will occur. Brent geese will still be able to utilise the majority of P08A SWBGS, which in itself forms just a small component of the SWBGS network available. This assessment is further supported by the fact that the loss of habitat will be temporary, covering at most 17% of a single non-breeding season and during a period when the majority of the Solent brent goose population would not be present. The P08A SWBGS will be restored in its entirety for in advance of when the peak numbers of geese are present in the region. Potential effects resulting from the limited plans or projects which have temporal and spatial overlap with the Proposed Development are considered to be localised and temporary. The North Portsea Island Coastal Flood Defence Scheme, Phase 4B - Coastline Between Milton Common and Kendall's Wharf Eastern Road (19/01368/FUL) includes a similar commitment to restore all SWBGS before the non-breeding season (October – March) so will not affect supporting habitat. Therefore, there is no in combination adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.2 and 10.4).
- d. Routine mitigation measures of standard best practice in terms of pollution prevention measures (see Onshore Outline CEMP; APP-505 Rev002) will make the likelihood of these events occurring highly unlikely. Similar best practice measures are employed for the other plans and projects identified which could contribute to in combination effects. When this effect is considered in combination with potential effects resulting from other relevant plans or projects (Table 5 of Appendix 3) it is concluded that there is no potential for adverse effects on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.2 and 10.4).
- e. Routine mitigation measures of standard best practice in terms of waste management (Onshore Outline CEMP; APP-505 Rev002) will make the likelihood of these events occurring highly unlikely. Similar best practice measures are employed for the other plans and projects identified which could contribute to in combination effects. When this effect is considered in combination with potential effects resulting from other relevant plans or projects (Table 5 of Appendix 3) it is concluded that there is no potential for adverse effects on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.3, Tables 10.2 and 10.4).

HRA Integrity Matrix 3A: Portsmouth Harbour SPA (Marine Ornithology)

Name of European Site: Portsmouth Harbour SPA (Marine Ornithology)																		
Distance to Proposed Development: 4.9 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)																		
Red-breasted merganser (W)													Xa	Xa	Xa	Xa	Xa	Xa
Black-tailed godwit (W)																		
Dunlin (W)																		
Supporting habitat (water column)													Xa	Xa	Xa	Xa	Xa	Xa
Supporting habitat Coastal lagoons																		

Name of European Site: Portsmouth Harbour SPA (Marine Ornithology)																		
Distance to Proposed Development: 4.9 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Supporting habitat Freshwater and coastal grazing marsh																		
Supporting habitat Salicornia and other annuals colonising mud and sand																		
Supporting habitat Atlantic salt meadows																		
Supporting habitat Spartina swards																		
Supporting habitat Intertidal seagrass beds																		
Supporting habitat Intertidal coarse sediments																		
Supporting habitat Intertidal mixed sediments																		
Supporting habitat Intertidal mud																		
Supporting habitat Subtidal mixed sediments																		
Supporting habitat Subtidal mud																		

Evidence supporting conclusions:

- a. Routine mitigation measures of standard best practice in terms of waste management, pollution prevention measures and strict navigational protocols will prevent these events occurring and therefore there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.5, Tables 10.7 and 10.9).

HRA Integrity Matrix 3B: Portsmouth Harbour SPA (Marine Ornithology – In Combination)

Name of European Site: Portsmouth Harbour SPA (Marine Ornithology)																		
Distance to Proposed Development: 4.9 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)																		
Red-breasted merganser (W)													Xa	Xa	Xa	Xa	Xa	Xa
Black-tailed godwit (W)																		
Dunlin (W)																		
Supporting habitat (water column)													Xa	Xa	Xa	Xa	Xa	Xa
Supporting habitat Coastal lagoons																		
Supporting habitat Freshwater and coastal grazing marsh																		
Supporting habitat Salicornia and other annuals colonising mud and sand																		

Name of European Site: Portsmouth Harbour SPA (Marine Ornithology)																			
Distance to Proposed Development: 4.9 km																			
European site feature	Adverse Effect on Integrity from the Proposed Development (In Combination)																		
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter			
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	
Supporting habitat Atlantic salt meadows																			
Supporting habitat Spartina swards																			
Supporting habitat Intertidal seagrass beds																			
Supporting habitat Intertidal coarse sediments																			
Supporting habitat Intertidal mixed sediments																			
Supporting habitat Intertidal mud																			
Supporting habitat Subtidal mixed sediments																			
Supporting habitat Subtidal mud																			

Evidence supporting conclusions:

- a. Routine mitigation measures of standard best practice in terms of waste management, pollution prevention measures and strict navigational protocols will prevent these events occurring and therefore will be no adverse effect on site integrity. Similar best practice measures are employed for the other plans and projects identified which could contribute to in combination effects. When these effects are considered in combination with potential effects resulting from other relevant plans or projects (Table 4 of Appendix 3) it is concluded that there is no potential for adverse effects on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.5, Tables 10.7 and 10.9).

HRA Integrity Matrix 3C: Portsmouth Harbour SPA (Onshore Ecology)

Name of European Site: Portsmouth Harbour SPA (Onshore Ecology)																					
Distance to Proposed Development: 4.9 km																					
European site feature	Adverse Effect on Integrity from the Proposed Development (Alone)																				
	Disturbance & displacement			Visual disturbance			Light pollution			Indirect effects			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)	x a		x a													x c	x c	x c	x d	x d	x d
Red-breasted merganser (W)																					
Black-tailed godwit (W)																x c	x c	x c	x d	x d	x d
Dunlin (W)																x c	x c	x c	x d	x d	x d
Supporting habitat: freshwater and grazing marsh										x b		x b				x c	x c	x c	x d	x d	x d

Evidence supporting conclusions:

- a.** Effects of the construction stage on Chichester and Langstone Harbour SPA and the dark-bellied brent goose and the waterfowl assemblage features will be avoided by restricting works within the winter season, defined as October to March (the period when SPA birds such as dark-bellied brent goose arrive from their breeding grounds (Snow and Perrins, 1998). A detailed overview of the working restrictions were provided in Chapter 16: Onshore Ecology and Appendix 16.14: Winter Working Restriction for Features of Chichester & Langstone Harbours SPA and then subject to revisions following consultation with Natural England which are captured in the updated Outline Onshore Construction Environmental Monitoring Plan (OOCEMP; APP-505). Adoption of Principle 1 (construction works cannot take place in SWBGS) will offset direct effects on those SWBGS sites that lie within the Order Limits as detailed above (as these sites will not be subject to works in the winter period when they are used by SPA birds). Adoption of Principle 6 includes the consideration of both construction noise from trenching / road saw activities and HDD. Trenching / road saw noise at 69dbAmax leads to overlap of varying extents, with fourteen SWBGS sites. Construction work at twelve SWBGS sites is restricted during October – March on this basis. In accordance with the requirements of the OOCEMP, screening at least 2 m high around the perimeter of the HDD compounds is required for the purpose of noise mitigation. With the exception of HDD-3 and HDD-6, HDD works will not impact SWBGS following the application of screening which will prevent any noise effects of over 69 dB reaching SWBGS sites. HDD-3 noise levels will not extend beyond the site compound and therefore only impact hardstanding habitat and not effecting the integrity of the SWBGS. Noise levels from HDD-6 marginally overlap with the P23A SWBGS. However, as the HDD compound lies within the SWBGS, it is already subject to Principle 1 so that winter work (October to March inclusive) is restricted. Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.5, Tables 10.8 and 10.10).
- b.** No habitat within the SPA/Ramsar site will be lost on either a permanent or temporary basis as a result of onshore construction / decommissioning activities. Several SWBGS sites do however lie within the Order Limits, namely: P08A, P11, P23A, P23B and P23R. Restoration measures will be implemented which require completion and grass sward re-established to provide a suitable food resource by October when brent geese return to the Solent to winter. The choice of restoration approach is primarily dependent on the time available within the summer growing season for implementation. Re-seeding is not likely to be the optimal technique after May so that for any restoration works after this month, re-turfing would be implemented. These measures including details of site preparation, establishment and aftercare are provided in the revised Onshore Outline CEMP. P211, P23A and P23 R will be subject to re-turfing restoration within the appropriate timescales to allow reestablishment prior to October. P23B will be subject to either re-seeding or re-turfing. Components of P08A will not be restored until the month of October. However, no construction activities will take place on SWBGS sites in the non-breeding winter season so that visual and noise disturbance associated with these will not impact brent geese. While no data has been located that shows arrival dates at Farlington or the wider SPA it can be expected that smaller numbers will be present in October (and indeed March during their departure). National census data gathered by the British Trust for Ornithology (BTO) through their Wetland Bird Survey (WeBS) Scheme shows that numbers present in England during October are approximately 30% of those during the peak month of January. Additional important factors to consider include the amount of habitat that will require restoration in October and the proportion that it is of the SWBGS sites and the wider network. The October restoration area accounts for: 12 % of the P08A SWBGS, 1.2 % of SWBGS core sites and 0.2 % of the entire SWBGS network. On this basis, it is determined that the restoration of 1.7 ha during the month of October would not impair the SWBGS network and specifically it would not impact the non-breeding brent goose population. Irrespective of the temporary unavailability of 12% of the SWBGS, brent geese would not be disturbed and therefore the functionality of the P08A SWBGS would not be lost due to the extensive remaining habitat. The temporary habitat loss accounts for just 1.2% of the SWBGS core sites and 0.2% of the SWBGS network. The effect on the supporting habitat is therefore considered to be of a de minimis nature in that no perceptible change to baseline conditions will occur. Brent geese will still be able to utilise the majority of P08A SWBGS, which in itself forms just a small component of the SWBGS network available. This assessment is further supported by the fact that the loss of habitat will be temporary, covering at most 17% of a single non-breeding season and during a period when the majority of the Solent brent goose population would not be present. The P08A SWBGS will be restored in its entirety for in advance of when the peak numbers of geese are present in the region. Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.5, Tables 10.8 and 10.10).
- c.** Routine mitigation measures of standard best practice in terms of pollution prevention measures (see Onshore Outline Construction Environmental Management Plan ('CEMP') (APP-505 Rev002)) will make the likelihood of these events occurring highly unlikely and therefore not resulting in an adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.5, Tables 10.8 and 10.10).
- d.** Routine mitigation measures of standard best practice in terms of waste management (see Onshore Outline CEMP; APP-505 Rev002) will make the likelihood of these events occurring highly unlikely and therefore not resulting in an adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.5, Tables 10.8 and 10.10).

HRA Integrity Matrix 3D: Portsmouth Harbour SPA (Onshore Ecology – In Combination)

Name of European Site: Portsmouth Harbour SPA (Onshore Ecology)																								
Distance to Proposed Development: 4.9 km																								
European site feature	Adverse Effect on Integrity from the Proposed Development (In Combination)																							
	Disturbance & displacement			Visual disturbance			Light pollution			Indirect effects			INIS			Accidental spills			Litter					
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D			
Dark-bellied brent goose (W)	x a		x a																x c	x c	x c	x d	x d	x d
Red-breasted merganser (W)																								
Black-tailed godwit (W)																			x c	x c	x c	x d	x d	x d
Dunlin (W)																			x c	x c	x c	x d	x d	x d
Supporting habitat: freshwater and grazing marsh										x b		x b							x c	x c	x c	x d	x d	x d

Evidence supporting conclusions:

- a. No construction works will occur in SWBGS sites that lie within the Proposed Developments Order Limits during the winter period October – March, while works that have the potential to produce noise impacts of over 69dbAmax in either SWBGS or the SPA will be restricted during October - March. Potential effects resulting from the limited plans or projects which have temporal and spatial overlap with the Proposed Development (Appendices 16.15 and 16.16 of the ES) are considered to be localised and temporary. The North Portsea Island Coastal Flood Defence Scheme, Phase 4B - Coastline Between Milton Common and Kendall’s Wharf Eastern Road (19/01368/FUL) includes a full winter working restriction (October – March) so will not disturb dark-bellied brent goose. Potential effects resulting from the limited plans or projects which have temporal and spatial overlap with the Proposed Development (Appendices 16.15 and 16.16 of the ES) are considered to be localised and temporary. The North Portsea Island Coastal Flood Defence Scheme, Phase 4B - Coastline Between Milton Common and Kendall’s Wharf Eastern Road (19/01368/FUL) includes a full winter working restriction (October – March) so will not disturb dark-bellied brent goose. Such restrictions have been adopted by other plans or projects identified as potentially affecting wintering bird features of the SPA or SWBGS Therefore, there is no in combination adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.5, Tables 10.8 and 10.10).
- b. No habitat within the SPA/Ramsar site will be lost on either a permanent or temporary basis as a result of onshore construction / decommissioning activities. Several SWBGS sites do however lie within the Order Limits, namely: P08A, P11, P23A, P23B and P23R. Restoration measures will be implemented which require completion and grass sward re-established to provide a suitable food resource by October when brent geese return to the Solent to winter. Components of P08A will not be restored until the month of October. The October restoration area accounts for: 12 % of the P08A SWBGS, 1.2 % of SWBGS core sites and 0.2 % of the entire SWBGS network. On this basis, it is determined that the restoration of 1.7 ha during the month of October would not impair the SWBGS network and specifically it would not impact the non-breeding brent goose population. The effect on the supporting habitat is therefore considered to be of a de minimis nature in that no perceptible change to baseline conditions will occur. Brent geese will still be able to utilise the majority of P08A SWBGS, which in itself forms just a small component of the SWBGS network available. This assessment is further supported by the fact that the loss of habitat will be temporary, covering at most 17% of a single non-breeding season and during a period when the majority of the Solent brent goose population would not be present. The P08A SWBGS will be restored in its entirety for in advance of when the peak numbers of geese are present in the region. Potential effects resulting from the limited plans or projects which have temporal and spatial overlap with the Proposed Development are considered to be localised and temporary. The North Portsea Island Coastal Flood Defence Scheme, Phase 4B - Coastline Between Milton Common and Kendall’s Wharf Eastern Road (19/01368/FUL) includes a similar commitment to restore all SWBGS before the non-breeding season (October – March) so will not affect supporting habitat. Potential effects resulting from the limited plans or projects which have temporal and spatial overlap with the Proposed Development (Appendices 16.15 and 16.16 of the ES) are considered to be localised and temporary. The North Portsea Island Coastal Flood Defence Scheme, Phase 4B - Coastline Between Milton Common and Kendall’s Wharf Eastern Road (19/01368/FUL) includes a similar commitment to restore all SWBGS before the non-breeding season (October – March) so will not result in a loss of supporting habitat. Therefore, there is no in combination adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.5, Tables 10.8 and 10.10).
- c. Routine mitigation measures of standard best practice in terms of pollution prevention measures (see Onshore Outline CEMP) will make the likelihood of these events occurring highly unlikely. Similar best practice measures are employed for the other plans and projects identified which could contribute to in combination effects. When this effect is considered in combination with potential effects resulting from other relevant plans or projects (Table 5 of Appendix 3) it is concluded that there is no potential for adverse effects on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.5, Tables 10.8 and 10.10).

d. Routine mitigation measures of standard best practice in terms of waste management (Onshore Outline CEMP) will make the likelihood of these events occurring highly unlikely. Similar best practice measures are employed for the other plans and projects identified which could contribute to in combination effects. When this effect is considered in combination with potential effects resulting from other relevant plans or projects (Table 5 of Appendix 3) it is concluded that there is no potential for adverse effects on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.5, Tables 10.8 and 10.10).

HRA Integrity Matrix 4A: Solent and Southampton Water SPA (Marine Ornithology)

Name of European Site: Solent and Southampton Water SPA (Marine Ornithology)																		
Distance to Proposed Development: 6.6 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)																		
Teal (W)																		
Ringed plover (W)																		
Black-tailed godwit (W)																		
Mediterranean gull (B)													Xa	Xa	Xa	Xa	Xa	Xa
Sandwich tern (B)													Xa	Xa	Xa	Xa	Xa	Xa
Little tern (B)													Xa	Xa	Xa	Xa	Xa	Xa
Roseate tern (B)													Xa	Xa	Xa	Xa	Xa	Xa
Common tern (B)													Xa	Xa	Xa	Xa	Xa	Xa
Supporting habitat (water column)													Xa	Xa	Xa	Xa	Xa	Xa
Supporting habitat Coastal lagoons																		
Supporting habitat Coastal reedbeds																		
Supporting habitat Freshwater and coastal grazing marsh																		
Supporting habitat Salicornia and other annuls colonising mud and sand																		
Supporting habitat Atlantic salt meadows																		
Supporting habitat Spartina swards																		
Supporting habitat Intertidal seagrass beds																		
Supporting habitat Intertidal rocks																		
Supporting habitat Intertidal coarse sediment																		
Supporting habitat Intertidal mixed sediments																		
Supporting habitat Intertidal mud																		
Supporting habitat Intertidal sand and muddy sand																		
Supporting habitat Intertidal rock																		
Supporting habitat Subtidal seagrass beds																		
Supporting habitat Circalittoral rock																		

Evidence supporting conclusions:

- a. Routine mitigation measures of standard best practice in terms of waste management, pollution prevention measures and strict navigational protocols will prevent these events occurring and therefore there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.6, Tables 10.11 and 10.12).

HRA Integrity Matrix 4B: Solent and Southampton Water SPA (Marine Ornithology – In Combination)

Name of European Site: Solent and Southampton Water SPA (Marine Ornithology)																		
Distance to Proposed Development: 6.6 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)																		
Teal (W)																		
Ringed plover (W)																		
Black-tailed godwit (W)																		
Mediterranean gull (B)													Xa	Xa	Xa	Xa	Xa	Xa
Sandwich tern (B)													Xa	Xa	Xa	Xa	Xa	Xa
Little tern (B)													Xa	Xa	Xa	Xa	Xa	Xa
Roseate tern (B)													Xa	Xa	Xa	Xa	Xa	Xa
Common tern (B)													Xa	Xa	Xa	Xa	Xa	Xa
Supporting habitat (water column)													Xa	Xa	Xa	Xa	Xa	Xa
Supporting habitat Coastal lagoons																		
Supporting habitat Coastal reedbeds																		
Supporting habitat Freshwater and coastal grazing marsh																		
Supporting habitat Salicornia and other annuls colonising mud and sand																		
Supporting habitat Atlantic salt meadows																		
Supporting habitat Spartina swards																		
Supporting habitat Intertidal seagrass beds																		
Supporting habitat Intertidal rocks																		
Supporting habitat Intertidal coarse sediment																		
Supporting habitat Intertidal mixed sediments																		
Supporting habitat Intertidal mud																		
Supporting habitat Intertidal sand and muddy sand																		
Supporting habitat Intertidal rock																		
Supporting habitat Subtidal seagrass beds																		
Supporting habitat Circalittoral rock																		

Evidence supporting conclusions:

- a. Routine mitigation measures of standard best practice in terms of waste management, pollution prevention measures and strict navigational protocols will prevent these events occurring and therefore no adverse effect on site integrity. Similar best practice measures are employed for the other plans and projects identified which could contribute to in combination effects. When these effects are considered in combination with potential effects resulting from other relevant plans or projects (Table 4 of Appendix 3) it is concluded that there is no potential for adverse effects on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.6, Tables 10.21 and 10.12).

HRA Integrity Matrix 5A: Pagham Harbour SPA (Marine Ornithology)

Name of European Site: Pagham Harbour SPA (Marine Ornithology)																		
Distance to Proposed Development: 9.5 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Dark-bellied brent goose (W)																		
Ruff (W)																		
Little tern (B)																		
Common tern (B)													Xa	Xa	Xa	Xa	Xa	Xa
Supporting habitat (water column)													Xa	Xa	Xa	Xa	Xa	Xa
Supporting habitat Coastal lagoons																		
Supporting habitat Freshwater and coastal grazing marsh																		
Supporting habitat Mediterranean and thermo-Atlantic halophilous scrubs																		
Supporting habitat Salicornia and other annuals colonising mud and sand																		
Supporting habitat Atlantic salt meadows																		
Supporting habitat Spartina swards																		
Supporting habitat Intertidal seagrass beds																		
Supporting habitat Intertidal coarse sediment																		
Supporting habitat Intertidal mud																		
Supporting habitat Intertidal sand and muddy sand																		

Evidence supporting conclusions:

- a. Routine mitigation measures of standard best practice in terms of waste management, pollution prevention measures and strict navigational protocols will prevent these events occurring and therefore no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.7, Tables 10.13 and 10.14).

HRA Integrity Matrix 5B: Pagham Harbour SPA (Marine Ornithology – In Combination)

Name of European Site: Pagham Harbour SPA (Marine Ornithology)																		
Distance to Proposed Development: 9.5 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Dark-bellied brent goose (W)																		
Ruff (W)																		
Little tern (B)																		
Common tern (B)													Xa	Xa	Xa	Xa	Xa	Xa
Supporting habitat (water column)													Xa	Xa	Xa	Xa	Xa	Xa
Supporting habitat Coastal lagoons																		
Supporting habitat Freshwater and coastal grazing marsh																		
Supporting habitat Mediterranean and thermo-Atlantic halophilous scrubs																		
Supporting habitat Salicornia and other annuals colonising mud and sand																		
Supporting habitat Atlantic salt meadows																		
Supporting habitat Spartina swards																		
Supporting habitat Intertidal seagrass beds																		
Supporting habitat Intertidal coarse sediment																		
Supporting habitat Intertidal mud																		
Supporting habitat Intertidal sand and muddy sand																		

Evidence supporting conclusions:

- a. Routine mitigation measures of standard best practice in terms of waste management, pollution prevention measures and strict navigational protocols will prevent these events occurring and therefore no adverse effect on site integrity. Similar best practice measures are employed for the other plans and projects identified which could contribute to in combination effects. When these effects are considered in combination with potential effects resulting from other relevant plans or projects (Table 4 of Appendix 3) it is concluded that there is no potential for adverse effects on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.7, Tables 10.13 and 10.14).

HRA Integrity Matrix 6A: Littoral Seino-Marin SPA (Marine Ornithology)

Name of European Site: Littoral Seino-Marin SPA (Marine Ornithology)																		
Distance to Proposed Development: 30.6 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Greylag goose (W)																		

Name of European Site: Littoral Seino-Marin SPA (Marine Ornithology)																		
Distance to Proposed Development: 30.6 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
White-fronted goose (W)																		
Shelduck (W)																		
Eider (W)																		
Velvet scoter (W)																		
Common scoter (W)																		
Red-breasted merganser (W)																		
Red-throated diver (W)																		
Black-throated diver (W)																		
Great northern diver (W)																		
Storm petrel (P)																		
Leach's storm petrel (P)																		
Fulmar (B)													Xa	Xa	Xa	Xa	Xa	Xa
Manx shearwater (P)																		
Balearic shearwater (P)																		
Great crested grebe (W)																		
Slavonian grebe (W)																		
Black-necked grebe (P)																		
Spoonbill (W)																		
Little egret (W)																		
Gannet (W)																		
Shag (B)																		
Cormorant (B)																		
Honey buzzard (W)																		
Hen harrier (W)																		
Avocet (W)																		
Purple sandpiper (W)																		
Common sandpiper (W)																		
Kittiwake (B)													Xa	Xa	Xa	Xa	Xa	Xa
Sabine's gull (P)																		
Little gull (P)																		
Mediterranean gull (W)																		
Lesser black-backed gull (W)																		
Herring gull (B)													Xa	Xa	Xa	Xa	Xa	Xa
Great black-backed gull (B)													Xa	Xa	Xa	Xa	Xa	Xa
Gull-billed tern (P)																		
Sandwich tern (P)																		
Little tern (P)																		

Name of European Site: Littoral Seino-Marin SPA (Marine Ornithology)																		
Distance to Proposed Development: 30.6 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (Alone)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Common tern (P)																		
Arctic tern (P)																		
Great skua (W)																		
Pomarine skua (P)																		
Arctic skua (P)																		
Guillemot (W)																		
Razorbill (W)																		
Short-eared owl (W)																		
Merlin (W)																		
Peregrine (B)																		
Woodlark (W)																		

Evidence supporting conclusions:

- a. Routine mitigation measures of standard best practice in terms of waste management, pollution prevention measures and strict navigational protocols will prevent these events occurring and therefore there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.8, Tables 10.15 and 10.16).

HRA Integrity Matrix 6B: Littoral Seino-Marin SPA (Marine Ornithology – In Combination)

Name of European Site: Littoral Seino-Marin SPA (Marine Ornithology)																		
Distance to Proposed Development: 30.6 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Greylag goose (W)																		
White-fronted goose (W)																		
Shelduck (W)																		
Eider (W)																		
Velvet scoter (W)																		
Common scoter (W)																		
Red-breasted merganser (W)																		
Red-throated diver (W)																		
Black-throated diver (W)																		
Great northern diver (W)																		

Name of European Site: Littoral Seino-Marin SPA (Marine Ornithology)																		
Distance to Proposed Development: 30.6 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Storm petrel (P)																		
Leach's storm petrel (P)																		
Fulmar (B)													Xa	Xa	Xa	Xa	Xa	Xa
Manx shearwater (P)																		
Balearic shearwater (P)																		
Great crested grebe (W)																		
Slavonian grebe (W)																		
Black-necked grebe (P)																		
Spoonbill (W)																		
Little egret (W)																		
Gannet (W)																		
Shag (B)																		
Cormorant (B)																		
Honey buzzard (W)																		
Hen harrier (W)																		
Avocet (W)																		
Purple sandpiper (W)																		
Common sandpiper (W)																		
Kittiwake (B)													Xa	Xa	Xa	Xa	Xa	Xa
Sabine's gull (P)																		
Little gull (P)																		
Mediterranean gull (W)																		
Lesser black-backed gull (W)																		
Herring gull (B)													Xa	Xa	Xa	Xa	Xa	Xa
Great black-backed gull (B)													Xa	Xa	Xa	Xa	Xa	Xa
Gull-billed tern (P)																		
Sandwich tern (P)																		
Little tern (P)																		
Common tern (P)																		
Arctic tern (P)																		
Great skua (W)																		
Pomarine skua (P)																		
Arctic skua (P)																		
Guillemot (W)																		
Razorbill (W)																		
Short-eared owl (W)																		
Merlin (W)																		

Name of European Site: Littoral Seino-Marin SPA (Marine Ornithology)																		
Distance to Proposed Development: 30.6 km																		
European site feature	Adverse Effect on Integrity from the Proposed Development (In Combination)																	
	Disturbance & displacement			Indirect effects			Collision			INIS			Accidental spills			Litter		
	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Peregrine (B)																		
Woodlark (W)																		

Evidence supporting conclusions:

- a. Routine mitigation measures of standard best practice in terms of waste management, pollution prevention measures and strict navigational protocols will prevent these events occurring and therefore there is no adverse effect on site integrity. Similar best practice measures are employed for the other plans and projects identified which could contribute to in combination effects. When these effects are considered in combination with potential effects resulting from other relevant plans or projects (Table 4 of Appendix 3) it is concluded that there is no potential for adverse effects on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.8, Tables 10.15 and 10.16).

Integrity Matrix 7: Solent Maritime SAC (Annex I Habitat Features)

Name of European site and designation: Solent Maritime SAC																								
EU Code: UK0030059																								
Distance to Proposed Development: 0 km																								
European site features		Adverse Effect on Integrity from the Proposed Development																						
<i>Effect</i>	Increased SSC/smothering			Contaminated sediments			Habitat disturbance/loss			Hydrodynamic changes			Invasive species			Pollution events			EMF/Temperature			<i>In combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Estuaries [1130]	x_a	x_b	x_a										x_c	x_c	x_c	x_d	x_d	x_d				x_e	x_e	x_e
Mudflats and sandflats (not submerged at low tide) [1140]	x_a	x_b	x_a										x_c	x_c	x_c	x_d	x_d	x_d				x_e	x_e	x_e
Sandbanks (slightly covered by seawater all the time) [1110]	x_a	x_b	x_a										x_c	x_c	x_c	x_d	x_d	x_d				x_e	x_e	x_e
<i>Spartina</i> swards [1320]	x_a	x_b	x_a										x_c	x_c	x_c	x_d	x_d	x_d				x_e	x_e	x_e
Atlantic salt meadows [1330]	x_a	x_b	x_a										x_c	x_c	x_c	x_d	x_d	x_d				x_e	x_e	x_e
Salicornia and other annuals colonising mud and sand [1310]	x_a	x_b	x_a										x_c	x_c	x_c	x_d	x_d	x_d				x_e	x_e	x_e
Shifting dunes along the shoreline [2120]																								
Coastal lagoons [1150]																								
Annual vegetation of drift lines [1210]																								
Perennial vegetation of stony banks [1220]																								
Desmoulin's whorl snail (<i>Vertigo moulinsiana</i>) [1016]																								

Evidence supporting conclusions:

- a. Due to the potential for high levels of sediment deposition within the SAC as a result of sediment disposal activities, it was considered that LSE could not be ruled out for any connected feature (HRA Report APP-491, Rev 002, Section 7.2.1). It has been determined that adverse effects as a result of sediment disposal can be avoided through mitigation. It is proposed that sediment disposal activities be restricted to outwith Water Framework Directive (WFD) waters (plus a buffer of 3 km). Modelling indicates that this mitigation will result in no connectivity between SAC features and sediment disposal activities, and therefore no potential for adverse effects on site integrity. Normal cable construction activities (excluding dredged sediment deposition) will take place at a minimum distance of 0.24 km from SAC features and are likely to result in light, temporary deposits only which are anticipated to be removed within a few tide cycles as a result of tidal forcing, therefore there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.10, Tables 10.17 and 10.18).
- b. Operation effects are expected to be less than or equal to construction. Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.10, Tables 10.19 and 10.20).
- c. Adoption of routine best practice management measures for prevention of INIS will ensure that the risk of introduction of such species is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a biosecurity plan (as part of the CEMP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.10, Tables 10.19 and 10.20).
- d. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Marine Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.10, Tables 10.19 and 10.20).
- e. Given the very small (e.g. within natural background of variation for SSC) and localised potential effects resulting from the Proposed Development, the temporary nature of effects, and the fact that any other activities which may result in in combination effects are likely to be similar or lesser in extent and magnitude (coupled with the fact that best practice measures will be in place for both INIS and pollution), when these effects are considered in combination with potential effects resulting from other relevant plans or projects (Table 1 of Appendix 3) it is considered that there is no potential for adverse effect on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.10, Tables 10.19 and 10.20).

HRA Integrity Matrix 8: South Wight Maritime SAC (Annex I Habitat Features)

Name of European site and designation: South Wight Maritime SAC																								
EU Code: UK0030061																								
Distance to Proposed Development: 3.3 km																								
European site features			Adverse Effect on Integrity from the Proposed Development																					
Effect	Increased SSC/smothering			Habitat disturbance/loss			Contaminated sediments			Hydrodynamic changes			Invasive species			Pollution events			EMF/Temperature			In combination effects		
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
Reefs [1170]	x_a	x_b	x_a										x_c	x_c	x_c	x_d	x_d	x_d				x_e	x_e	x_e
Vegetated sea cliffs of the Atlantic and Baltic Coasts [1230]																								
Submerged or partially submerged sea caves [8330]	x_a	x_b	x_a										x_c	x_c	x_c	x_d	x_d	x_d				x_e	x_e	x_e

Evidence supporting conclusions:

- a. Due to the potential for sediment deposition within the SAC, it was considered that LSE could not be ruled out for any connected feature as a result of sediment disposal or cable installation activities (HRA Report APP-491, Rev 002, Section 7.2.1). It has been determined that adverse effects as a result of sediment disposal can be avoided through mitigation. It is proposed that sediment disposal activities be restricted to outwith Water Framework Directive (WFD) waters (plus a buffer of 3 km). Modelling indicates that this mitigation will result in no connectivity between SAC features and sediment disposal activities, and therefore no potential for adverse effects on site integrity can arise. Normal cable construction activities (excluding dredged sediment

- deposition) will take place at a minimum distance of 3.3 km from SAC features and will not result in any deposits other than very light temporary settlement which would be removed under normal tidal forcing, therefore there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.11, Tables 10.21 and 10.22).
- b. Operation effects are expected to be less than or equal to construction. Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.11, Tables 10.21 and 10.22).
 - c. Adoption of routine best practice management measures for prevention of INIS will ensure that the risk of introduction of such species is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a biosecurity plan (as part of the CEMP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.11, Tables 10.21 and 10.22).
 - d. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Marine Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.11, Tables 10.21 and 10.22).
 - e. Given the very small (e.g. within natural background of variation for SSC) and localised potential effects resulting from the Proposed Development, the temporary nature of effects, and the fact that any other activities which may result in in combination effects are likely to be similar or lesser in extent and magnitude (coupled with the fact that best practice measures will be in place for both INIS and pollution) when these effects are considered in combination with potential effects resulting from other relevant plans or projects (Table 1 of Appendix 3) it is considered that there is no potential for adverse effect on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.11, Tables 10.21 and 10.22).

HRA Integrity Matrix 9: River Itchen SAC (Fish)

Name of European site and designation: River Itchen SAC (Fish)																											
EU Code: UK0012599																											
Distance to Proposed Development: 27.5 km																											
European site features			Adverse Effect on Integrity from the Proposed Development																								
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects		
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
1106 Atlantic salmon (<i>Salmo salar</i>)	x	x	xa							x	x	x													x	x	xc
1044 Southern damselfly (<i>Coenagrion mercurial</i>)																											
1163 Bullhead (<i>Cottus gobio</i>)																											
1092 White-clawed (or Atlantic stream) crayfish																											
1096 Brook lamprey (<i>Lampetra planeri</i>)																											
1355 Otter (<i>Lutra lutra</i>)																											
3260 Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation																											

Evidence supporting conclusions:

- a. Both salmon and smolts are inherently tolerant of naturally high and variable levels of SSC given that they spawn in riverine environments and are frequently exposed to increases in SSC from flood events and land run off. In addition, both salmon life stages are highly mobile so can navigate round or through areas of elevated SSC. Therefore, there will be no adverse effects on site integrity (HRA Report (APP-491, Rev 002) Section 10.12, Tables 10.23 and 10.24).
- b. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.12, Tables 10.23 and 10.24).
- c. Considering the very small (e.g. within natural background of variation for SSC) and localised potential effect resulting from the Proposed Development, its temporary nature, and the fact that any other activities resulting from relevant projects and plans which may result in in combination effects are likely to be similar or lesser in extent and magnitude, it is concluded that there is no potential for adverse effect on site integrity in combination. Similarly for pollution effects, the very small and localised potential effect resulting from the Proposed Development, the temporary nature of effect, and the fact that any other activities which may result in in combination effects are likely to be similar or lesser in extent and magnitude as similar best practice pollution measures are employed for the other plans and projects, it is concluded that there is no potential for adverse effect on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.12, Tables 10.23 and 10.24).

HRA Integrity Matrix 10: River Avon SAC (Fish)

Name of European site and designation: River Avon SAC (Fish)																														
EU Code: UK0013016																														
Distance to Proposed Development: 51.4 km																														
European site features			Adverse Effect on Integrity from the Proposed Development																											
<i>Effect</i>	<i>Increased SSC</i>			<i>Physical Injury</i>			<i>Invasive species</i>			<i>Pollution events</i>			<i>Noise and vibration</i>			<i>Visual Disturbance</i>			<i>EMF</i>			<i>Temperature changes</i>			<i>In combination effects</i>					
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>			
1095 Sea lamprey (<i>Petromyzon marinus</i>)	x	x	x							x	x	x																x	x	xc
1106 Atlantic salmon	x	x	x							x	x	x																x	x	xc
1016 Desmoulin's whorl snail (<i>Vertigo moulinsiana</i>)																														
1096 Brook lamprey																														
1163 Bullhead																														
3260 Water courses of plain to montane levels with the <i>Ranuncion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation																														

Evidence supporting conclusions:

- a. Both salmon (and smolts) and sea lamprey (and transformers) are inherently tolerant of naturally high and variable levels of SSC given that they spawn in riverine environments and are frequently exposed to increases in SSC from flood events and land run off. In addition, salmon and sea lamprey are highly mobile so can navigate round or through areas of elevated SSC. Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.13, Tables 10.25 and 10.26).

- b. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.13, Tables 10.25 and 10.26).
- c. Considering the very small (e.g. within natural background of variation for SSC) and localised potential effect resulting from the Proposed Development, its temporary nature, and the fact that any other activities resulting from relevant projects and plans which may result in in combination effects are likely to be similar or lesser in extent and magnitude, it is concluded that there is no potential for adverse effects on site integrity in combination. Similarly for pollution effects, the very small and localised potential effect resulting from the Proposed Development, the temporary nature of effect, and the fact that any other activities which may result in in combination effects are likely to be similar or lesser in extent and magnitude as similar best practice pollution measures are employed for the other plans and projects, it is concluded that there is no potential for adverse effect on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.13, Tables 10.25 and 10.26).

HRA Integrity Matrix 11: River Axe SAC (Fish)

Name of European site and designation: River Axe SAC (Fish)																																				
EU Code: UK0030248																																				
Distance to Proposed Development: 168 km																																				
European site features			Adverse Effect on Integrity from the Proposed Development																																	
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects											
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			
1095 Sea lamprey										x	x	x																			x	x	x	b	b	b
1096 Brook lamprey																																				
1163 Bullhead																																				
3260 Water courses of plain to montane levels with the Ranuncion fluitantis and Callitricho-Batrachion vegetation																																				

Evidence supporting conclusions:

- a. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.14, Table 10.28).
- b. Considering the very small and localised potential effect resulting from the Proposed Development, the temporary nature of effect, and the fact that any other activities which may result in in combination effects are likely to be similar or lesser in extent and magnitude as similar best practice pollution measures are employed for the other plans and projects, it is concluded that there is no potential for adverse effect on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.14, Table 10.28).

HRA Integrity Matrix 12: Plymouth Sound and Estuaries SAC (Fish)

Name of European site and designation: Plymouth Sound and Estuaries SAC (Fish)																											
EU Code: UK0030248																											
Distance to Proposed Development: 229 km																											
European site features	Adverse Effect on Integrity from the Proposed Development																										
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects		
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
1102 Allis shad (<i>Alosa alosa</i>)										x	x	x													x	x	xb
1110 Sandbanks which are slightly covered by sea water all the time																											
1130 Estuaries																											
1160 Large shallow inlets and bays																											
1170 Reefs																											
1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)																											
1140 Mudflats and sandflats not covered by seawater at low tide																											
1441 Shore dock																											

Evidence supporting conclusions:

- a. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.15, Table 10.30).
- b. Considering the very small and localised potential effect resulting from the Proposed Development, the temporary nature of effect, and the fact that any other activities which may result in in combination effects are likely to be similar or lesser in extent and magnitude as similar best practice pollution measures are employed for the other plans and projects, it is concluded that there is no potential for adverse effect on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.15, Table 10.30).

HRA Integrity Matrix 13: Estuaires et Littoral Picards (Baies de Somme et d'Authie) SAC (Fish)

Name of European site and designation: Estuaries et Littoral Picards (Baie de Somme et d'Authie) SAC (fish)																											
EU Code: FR2200346																											
Distance to Proposed Development: 84.6 km																											
European site features			Adverse Effect on Integrity from the Proposed Development																								
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects		
	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
Stage of Development																											
1099 River lamprey										x	x	x															
1166 Crested newt																											
1614 Creeping marshwort (<i>Apium repens</i>)																											
1903 Fen Orchid (<i>Liparis loeselii</i>)																											
6199 Jersey Tigar																											
1042 Yellow-spotted Whiteface (<i>Leucorhina pectotalis</i>)																											
1014 Narrow-mouthed whorl snail (<i>Vertigo angustior</i>)																											
1016 Desmoulin's whorl snail																											
1364 Grey seal																											
1321 Geoffroy's bat																											
1365 Common seal																											
1351 Common Porpoise																											
1349 Bottle-nosed Dolphin																											
1110 Sandbanks which are slightly covered by seawater all the time																											
1130 Estuaries																											
1140 Mudflats and sandflats not covered by seawater at low tide																											
1150 Coastal lagoons																											
1170 Reefs																											
1210 Annual vegetation of drift lines																											
1220 Perennial vegetation of stony banks																											
1230 Vegetated sea cliffs of the Atlantic and Baltic coasts																											
1310 Salicornia and other annuals colonizing mud and sand																											
1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)																											
1420 Mediterranean and thermos-Atlantic halophilous scrubs (<i>Sarcocornetea fructicosi</i>)																											
2130 Embryonic shifting dunes																											

Name of European site and designation: Estuaries et Littoral Picards (Baie de Somme et d'Authie) SAC (fish)																																								
EU Code: FR2200346																																								
Distance to Proposed Development: 84.6 km																																								
European site features				Adverse Effect on Integrity from the Proposed Development																																				
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects															
	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										
Stage of Development																																								
2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes')																																								
2130 Fixed coastal dunes with herbaceous vegetation ('grey dunes')																																								
2160 Dunes with <i>Hippophae rhamnoides</i>																																								
2170 Dunes with <i>Salix repens</i> ssp <i>argentea</i> (<i>Salicion arenariae</i>)																																								
2180 Wooded dunes of the Atlantic, Continental and Boreal region																																								
2190 Humid dune slacks																																								
3110 Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)																																								
3140 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp																																								
3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition – type vegetation																																								
3260 Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation																																								
6410 <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)																																								
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels																																								
6510 Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)																																								
7230 Alkine fens																																								
91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)																																								

Evidence supporting conclusions:

- a. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.17, Table 10.37).

- b. Considering the very small and localised potential effect resulting from the Proposed Development, the temporary nature of effect, and the fact that any other activities which may result in combination effects are likely to be similar or lesser in extent and magnitude as similar best practice pollution measures are employed for the other plans and projects, it is concluded that there is no potential for adverse effect on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.17, Table 10.37).

HRA Integrity Matrix 14: Baie de Canche et Couloir des trois Estuaires SAC (Fish)

Name of European site and designation: Baie de Canche et Couloir des trois Estuaires SAC																											
EU Code: FR3102005																											
Distance to Proposed Development: 86.5 km																											
European site features			Adverse Effect on Integrity from the Proposed Development																								
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects		
	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
1102 Allis shad										x	x	x													x	x	x
1095 Sea lamprey										a	a	a													b	b	b
1099 River lamprey										x	x	x													x	x	x
1106 Atlantic salmon										a	a	a													b	b	b
1351 Harbour porpoise										x	x	x													x	x	x
1364 Grey seal										a	a	a													b	b	b
1365 Harbour seal																											
1110 Sandbanks which are slightly covered by sea water all the time																											
1130 Estuaries																											
1140 Mudflats and sandflats not covered by seawater at low tide																											
1210 Annual vegetation of drift lines																											
1310 Salicornia and other annuals colonising mud and sand																											
1330 Atlantic salt meadows																											

Evidence supporting conclusions:

- a. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.18, Table 10.41).
- b. Considering the very small and localised potential effect resulting from the Proposed Development, the temporary nature of effect, and the fact that any other activities which may result in combination effects are likely to be similar or lesser in extent and magnitude as similar best practice pollution measures are employed for the other plans and projects, it is concluded that there is no potential for adverse effect on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.18, Table 10.41).

HRA Integrity Matrix 15: Baie de Seine Orientale SAC (Fish)

Name of European site and designation: Baie de Seine Orientale SAC (fish)																											
EU Code: FR2502021																											
Distance to Proposed Development: 90.9 km																											
European site features		Adverse Effect on Integrity from the Proposed Development																									
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects		
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
1102 Allis shad										X	X	X													X	X	X
1103 Twaité shad										a	a	a													b	b	b
1095 Sea lamprey										X	X	X													X	X	X
1099 River lamprey										a	a	a													b	b	b
1106 Atlantic salmon										X	X	X													X	X	X
1351 Harbour porpoise										a	a	a													b	b	b
1364 Grey seal																											
1365 Harbour seal																											
1349 Bottlenose dolphin																											
1110 Sandbanks which are slightly covered by sea water all the time																											
1160 Large shallow inlets and bays																											
1170 Reefs																											
1210 Annual vegetation of drift lines																											
1310 Salicornia and other annuals colonising mud and sand																											
1330 Atlantic salt meadows																											

Evidence supporting conclusions:

- a. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.19, Table 10.45).
- b. Considering the very small and localised potential effect resulting from the Proposed Development, the temporary nature of effect, and the fact that any other activities which may result in in combination effects are likely to be similar or lesser in extent and magnitude as similar best practice pollution measures are employed for the other plans and projects, it is concluded that there is no potential for adverse effect on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.19, Table 10.45).

HRA Integrity Matrix 16: Littoral Cauchois SAC (Fish)

Name of European site and designation: Littoral Cauchois SAC (fish)																																							
EU Code: FR2300139																																							
Distance to Proposed Development: 52.7 km																																							
European site features			Adverse Effect on Integrity from the Proposed Development																																				
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects														
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									
1103 Twaité shad (<i>Alosa fallax</i>)										x	x	x																x	x	x	b	b	b	x	b	b			
1099 River lamprey (<i>Lampetra fluviatilis</i>)										x	x	x																			x	x	x	b	b	b	x	b	b
1095 Sea lamprey										x	x	x																			x	x	x	b	b	b	x	b	b
1166 Crested newt (<i>triturus cristatus</i>)																																							
1163 Freshwater sculpin (<i>Cottus gobio</i>)																																							
1044 Southern coenagrion																																							
6199 Jersey tiger (<i>Euplagia quadripunctaria</i>)																																							
1083 Stag beetle (<i>Lucanus cervus</i>)																																							
1308 Barbastelle (<i>barbastelle barbastellus</i>)																																							
1364 Grey seal (<i>Halichoerus grypus</i>)																																							
1323 Bechsteins bat (<i>Myotis bechsteinii</i>)																																							
1321 Geoffroy's bat (<i>Myotis emarginatus</i>)																																							
1324 Greater mouse-eared bat (<i>Myotis myotis</i>)																																							
1365 Harbour seal (<i>Phoca vitulina</i>)																																							
1351 Common Porpoise (<i>Phocoena phocoena</i>)																																							
1304 Greater horseshoe bat (<i>Rhinolophus ferrumequinum</i>)																																							
1303 Lesser horseshoe bat (<i>Rhinolophus hipposideros</i>)																																							
1349 Bottle-nosed Dolphin (<i>Tursiops truncatus</i>)																																							
1170 Reefs																																							
1220 Perennial vegetation of stony banks																																							
1230 Vegetated sea cliffs of the Atlantic and Baltic coasts																																							
3110 Oligotrophic waters containing very few minerals of sandy plains (<i>littorelletalia uniflorae</i>)																																							
3140 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp																																							
3150 Natural eutrophic lakes and Magnopotamion or Hydrocharition – type vegetation																																							

Name of European site and designation: Littoral Cauchois SAC (fish)																														
EU Code: FR2300139																														
Distance to Proposed Development: 52.7 km																														
European site features	Adverse Effect on Integrity from the Proposed Development																													
	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects					
Effect	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
Stage of Development																														
4020 Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix																														
4030 European dry heaths																														
6410 Molina meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)																														
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels																														
6510 Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)																														
7220 Petrifying springs with tufa formation (Cratoneurion)																														
7230 Alkaline fens																														
8310 Caves not open to the public																														
9120 Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in shrublayer (Quercion robori-petraeae or Ilici-fagenion)																														
9130 Asperulo-Fagetum beech forests																														
9180 Tilio-Acerion forests of slopes, screes and ravines																														
9190 Old acidophilous oak woods with Quercus rubur on sandy plains																														
91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)																														

Evidence supporting conclusions:

- a. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.16, Table 10.33).
- b. Considering the very small and localised potential effect resulting from the Proposed Development, the temporary nature of effect, and the fact that any other activities which may result in in combination effects are likely to be similar or lesser in extent and magnitude as similar best practice pollution measures are employed for the other plans and projects, it is concluded that there is no potential for adverse effect on site integrity in combination with other projects and plans (HRA Report (APP-491, Rev 002) Section 10.16, Table 10.33).

HRA Integrity Matrix 17: Estuaires et littoral picards (baies de Somme et d'Authie) SAC (Marine Mammals)

Name of European site and designation: Estuaires et littoral picards (baies de Somme et d'Authie) SAC (Marine Mammals)																		
EU Code: FR2200346																		
Distance to Proposed Development: 87 km																		
European site features	Adverse Effect on Integrity from the Proposed Development																	
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development																		
1349 Bottlenose dolphin													Xa	Xa	Xa	Xb	Xb	Xb
1351 Harbour porpoise													Xa	Xa	Xa	Xb	Xb	Xb
1364 Grey seal													Xa	Xa	Xa	Xb	Xb	Xb
1365 Harbour seal													Xa	Xa	Xa	Xb	Xb	Xb
1614 Apium repens																		
6199 Euplagia quadripunctaria																		
1099 Lampetra fluviatilis																		
1042 Leucorhinia pectoralis																		
1903 Liparis loeselii																		
1321 Myotis emarginatus																		
1166 Triturus cristatus																		
1014 Vertigo angustior																		
1016 Vertigo moulinsiana																		
1110 Sandbanks which are slightly covered by sea water all the time																		
1130 Estuaries																		
1140 Mudflats and sandflats not covered by seawater at low tide																		
1150 Coastal lagoons																		
1170 Reefs																		
1210 Annual vegetation of drift lines																		
1220 Perennial vegetation of stony banks																		
1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts																		
1310 Salicornia and other annuals colonizing mud and sand																		
1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)																		
1420 Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)																		
2110 Embryonic shifting dunes																		
2120 Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")																		
2130 Fixed coastal dunes with herbaceous vegetation ("grey dunes")																		
2160 Dunes with Hippophaë rhamnoides																		

Name of European site and designation: Estuaires et littoral picards (baies de Somme et d'Authie) SAC (Marine Mammals)																		
EU Code: FR2200346																		
Distance to Proposed Development: 87 km																		
European site features	Adverse Effect on Integrity from the Proposed Development																	
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development																		
2170 Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>)																		
2180 Wooded dunes of the Atlantic, Continental and Boreal region																		
2190 Humid dune slacks																		
3110 Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)																		
3140 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.																		
3150 Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> - type vegetation																		
3260 Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation																		
6410 <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)																		
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels																		
6510 Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)																		
7230 Alkaline fens																		
91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)																		

Evidence supporting conclusions:

- a. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Marine Outline Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.17, Table 10.38).
- b. Considering the very small and localised potential effect resulting from the Proposed Development, the temporary nature of effect, and the fact that any other activities which may result in in combination effects are likely to be similar or lesser in extent and magnitude, it is concluded that there is no potential for adverse effect on site integrity in combination with other relevant projects and plans (HRA Report (APP-491, Rev 002) Section 10.17, Table 10.38).

HRA Integrity Matrix 18: Baie de Canche et couloir des trois estuaires SAC (Marine Mammals)

Name of European site and designation: Baie de Canche et couloir des trois estuaires SAC (Marine Mammals)																		
EU Code: FR3102005																		
Distance to Proposed Development: 85 km																		
European site features Effect	Adverse Effect on Integrity from the Proposed Development																	
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
1351 Harbour porpoise													Xa	Xa	Xa	Xb	Xb	Xb
1364 Grey seal													Xa	Xa	Xa	Xb	Xb	Xb
1365 Harbour seal													Xa	Xa	Xa	Xb	Xb	Xb
1095 Sea lamprey																		
1099 River lamprey																		
1102 Allis shad																		
1106 Atlantic salmon																		
1110 Sandbanks which are slightly covered by sea water all the time																		
1130 Estuaries																		
1140 Mudflats and sandflats not covered by seawater at low tide																		
1210 Annual vegetation of drift lines																		
1310 Salicornia and other annuals colonising mud and sand																		
1330 Atlantic salt meadows																		

Evidence supporting conclusions:

- a. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Marine Outline Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.18.4, Table 10.40).
- b. Considering the very small and localised potential effect resulting from the Proposed Development, the temporary nature of effect, and the fact that any other activities which may result in in combination effects are likely to be similar or lesser in extent and magnitude, it is concluded that there is no potential for adverse effect on site integrity in combination with other relevant projects and plans (HRA Report (APP-491, Rev 002) Section 10.18.4, Table 10.40).

HRA Integrity Matrix 19: Baie de Seine Orientale SAC (Marine Mammals)

Name of European site and designation: Baie de Seine Orientale SAC (Marine Mammals)																					
EU Code: FR2502021																					
Distance to Proposed Development: 91 km																					
European site features Effect	Adverse Effect on Integrity from the Proposed Development																				
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects					
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D			
1349 Bottlenose dolphin																Xa	Xa	Xa	Xb	Xb	Xb
1351 Harbour porpoise																Xa	Xa	Xa	Xb	Xb	Xb
1364 Grey seal																Xa	Xa	Xa	Xb	Xb	Xb
1365 Harbour seal																Xa	Xa	Xa	Xb	Xb	Xb
1095 Sea lamprey																					
1099 River lamprey																					
1102 Allis shad																					
1103 Twaite shad																					
1106 Atlantic salmon																					
1110 Sandbanks which are slightly covered by sea water all the time																					
1160 Large shallow inlets and bays																					
1170 Reefs																					

Evidence supporting conclusions:

- a. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Marine Outline Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.19.4, Table 10.44).
- b. Considering the very small and localised potential effect resulting from the Proposed Development, the temporary nature of effect, and the fact that any other activities which may result in in combination effects are likely to be similar or lesser in extent and magnitude, it is concluded that there is no potential for adverse effect on site integrity in combination with other relevant projects and plans (HRA Report (APP-491, Rev 002) Section 10.19.4, Table 10.44).

HRA Integrity Matrix 20: Littoral Cauchois SAC (Marine Mammals)

Name of European site and designation: Littoral Cauchois SAC (Marine Mammals)																		
EU Code: FR2300139																		
Distance to NSIP: 53 km																		
European site features	Adverse Effect on Integrity from the Proposed Development																	
<i>Effect</i>	<i>Auditory injury</i>			<i>Disturbance</i>			<i>Collision</i>			<i>Indirect effects</i>			<i>Pollution</i>			<i>In combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
1349 Bottlenose dolphin													x _a	x _a	x _a	x _b	x _b	x _b
1351 Harbour porpoise													x _a	x _a	x _a	x _b	x _b	x _b
1364 Grey seal													x _a	x _a	x _a	x _b	x _b	x _b
1365 Harbour seal													x _a	x _a	x _a	x _b	x _b	x _b
1103 Alosa fallax																		
1308 Barbastella barbastellus																		
1044 Coenagrion mercurial																		
1163 Cottus gobio																		
6199 Euplagia quadripunctaria																		
1099 Lampetra fluviatilis																		
1083 Lucanus cervus																		
1323 Myotis bechsteinii																		
1321 Myotis emarginatus																		
1324 Myotis myotis																		
1095 Petromyzon marinus																		
1304 Rhinolophus ferrumequinum																		
1303 Rhinolophus hipposideros																		
1166 Triturus cristatus																		
1170 Reefs																		
1220 Perennial vegetation of stony banks																		
1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts																		
3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)																		
3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.																		
3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation																		
4020 Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix																		
4030 European dry heaths																		

Name of European site and designation: Littoral Cauchois SAC (Marine Mammals)																		
EU Code: FR2300139																		
Distance to NSIP: 53 km																		
European site features	Adverse Effect on Integrity from the Proposed Development																	
<i>Effect</i>	<i>Auditory injury</i>			<i>Disturbance</i>			<i>Collision</i>			<i>Indirect effects</i>			<i>Pollution</i>			<i>In combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
6410 <i>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)</i>																		
6430 <i>Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels</i>																		
6510 <i>Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)</i>																		
7220 <i>Petrifying springs with tufa formation (Cratoneurion)</i>																		
7230 <i>Alkaline fens</i>																		
8310 <i>Caves not open to the public</i>																		
9120 <i>Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)</i>																		
9130 <i>Asperulo-Fagetum beech forests</i>																		
9180 <i>Tilio-Acerion forests of slopes, screes and ravines</i>																		
9190 <i>Old acidophilous oak woods with Quercus robur on sandy plains</i>																		
91E0 <i>Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)</i>																		

Evidence supporting conclusions:

- a. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Marine Outline Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.16.4, Table 10.34).
- b. Considering the very small and localised potential effect resulting from the Proposed Development, the temporary nature of effect, and the fact that any other activities which may result in in combination effects are likely to be similar or lesser in extent and magnitude, it is concluded that there is no potential for adverse effect on site integrity in combination with other relevant projects and plans (HRA Report (APP-491, Rev 002) Section 10.16.4, Table 10.34).

HRA Integrity Matrix 21: Récifs Gris-Nez Blanc-Nez SAC (Marine Mammals)

Name of European site and designation: Récifs Gris-Nez Blanc-Nez SAC (Marine Mammals)																					
EU Code: FR3102003																					
Distance to Proposed Development: 104 km																					
European site features	Adverse Effect on Integrity from the Proposed Development																				
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects					
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D			
1351 Harbour porpoise																x a	x a	x a	x b	x b	x b
1364 Grey seal																x a	x a	x a	x b	x b	x b
1365 Harbour seal																x a	x a	x a	x b	x b	x b
1110 Sandbanks which are slightly covered by sea water all the time																					
1170 Reefs																					

Evidence supporting conclusions:

- Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Marine Outline Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.22.3, Table 10.54).
- Considering the very small and localised potential effect resulting from the Proposed Development, the temporary nature of effect, and the fact that any other activities which may result in combination effects are likely to be similar or lesser in extent and magnitude, it is concluded that there is no potential for adverse effect on site integrity in combination with other relevant projects and plans (HRA Report (APP-491, Rev 002) Section 10.22.3, Table 10.54).

HRA Integrity Matrix 22: Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC (Marine Mammals)

Name of European site and designation: Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC (Marine Mammals)																					
EU Code: FR3102004																					
Distance to Proposed Development: 59 km																					
European site features	Adverse Effect on Integrity from the Proposed Development																				
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects					
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D			
1351 Harbour porpoise																x a	x a	x a	x b	x b	x b
1364 Grey seal																x a	x a	x a	x b	x b	x b
1365 Harbour seal																x a	x a	x a	x b	x b	x b
1110 Sandbanks which are slightly																					

Name of European site and designation: Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC (Marine Mammals)																		
EU Code: FR3102004																		
Distance to Proposed Development: 59 km																		
European site features	Adverse Effect on Integrity from the Proposed Development																	
<i>Effect</i>	<i>Auditory injury</i>			<i>Disturbance</i>			<i>Collision</i>			<i>Indirect effects</i>			<i>Pollution</i>			<i>In combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
<i>covered by sea water all the time</i>																		
<i>1170 Reefs</i>																		

Evidence supporting conclusions:

- a. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Marine Outline Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.20.3, Table 10.46).
- b. Considering the very small and localised potential effect resulting from the Proposed Development, the temporary nature of effect, and the fact that any other activities which may result in in combination effects are likely to be similar or lesser in extent and magnitude, it is concluded that there is no potential for adverse effect on site integrity in combination with other relevant projects and plans (HRA Report (APP-491, Rev 002) Section 10.20.3, Table 10.46).

HRA Integrity Matrix 23: Estuaire de la Seine SAC (Marine Mammals)

Name of European site and designation: Estuaire de la Seine SAC (Marine Mammals)																		
EU Code: FR2300121																		
Distance to NSIP: 90 km																		
European site features	Adverse Effect on Integrity from the Proposed Development																	
<i>Effect</i>	<i>Auditory injury</i>			<i>Disturbance</i>			<i>Collision</i>			<i>Indirect effects</i>			<i>Pollution</i>			<i>In combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
<i>1351 Harbour porpoise</i>													xa	xa	xa	xb	xb	xb
<i>1364 Grey seal</i>													xa	xa	xa	xb	xb	xb
<i>1365 Harbour seal</i>													xa	xa	xa	xb	xb	xb
<i>1044 Southern damselfly</i>																		
<i>1065 Marsh fritillary butterfly</i>																		
<i>1083 Stag beetle</i>																		
<i>1095 Sea lamprey</i>																		
<i>1096 Brook lamprey</i>																		
<i>1099 River lamprey</i>																		
<i>1103 Twaite shad</i>																		
<i>1106 Atlantic salmon</i>																		
<i>1166 Great crested newt</i>																		
<i>1304 Greater horseshoe bat</i>																		
<i>1308 Barbastelle</i>																		
<i>1324 Greater mouse-eared bat</i>																		
<i>5315 Bullhead</i>																		

Name of European site and designation: Estuaire de la Seine SAC (Marine Mammals)																		
EU Code: FR2300121																		
Distance to NSIP: 90 km																		
European site features	Adverse Effect on Integrity from the Proposed Development																	
	Auditory injury			Disturbance			Collision			Indirect effects			Pollution			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development																		
6199 Jersey tiger																		
1110 Sandbanks which are slightly covered by sea water all the time																		
1130 Estuaries																		
1140 Mudflats and sandflats not covered by seawater at low tide																		
1170 Reefs																		
1210 Annual vegetation of drift lines																		
1220 Perennial vegetation of stony banks																		
1310 Salicornia and other annuals colonizing mud and sand																		
1330 Atlantic salt meadows																		
2110 Embryonic shifting dunes																		
2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")																		
2130 Fixed coastal dunes with herbaceous vegetation ("grey dunes")																		
2160 Dunes with <i>Hippophae rhamnoides</i>																		
2180 Wooded dunes of the Atlantic, Continental and Boreal region																		
2190 Humid dune slacks																		
3140 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.																		
3150 Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation																		
3260 Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation																		
6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>)																		
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels																		
6510 Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)																		
9120 Atlantic acidophilous beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrublayer (<i>Quercion robori-petraeae</i> or <i>Ilici-Fagenion</i>)																		
9130 <i>Asperulo-Fagetum</i> beech forests																		
9180 <i>Tilio-Acerion</i> forests of slopes, scree and ravines																		

Evidence supporting conclusions:

- a. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Marine Outline Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.21.4, Table 10.52).
- b. Considering the very small and localised potential effect resulting from the Proposed Development, the temporary nature of effect, and the fact that any other activities which may result in in combination effects are likely to be similar or lesser in extent and magnitude, it is concluded that there is no potential for adverse effect on site integrity in combination with other relevant projects and plans (HRA Report (APP-491, Rev 002) Section 10.21.4, Table 10.52).

HRA Integrity Matrix 24: Estuaire de la Seine SAC (Fish)

Name of European site and designation: Estuaire de la Seine SAC (Fish)																											
EU Code: FR2300121																											
Distance to NSIP: 90 km																											
European site features																											
Effect	Adverse Effect on Integrity from the Proposed Development																										
	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects		
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
1103 Twaite shad										Xa	Xa	Xa												Xb	Xb	Xb	
1095 Sea lamprey										Xa	Xa	Xa												Xb	Xb	Xb	
1099 River lamprey										Xa	Xa	Xa												Xb	Xb	Xb	
1106 Atlantic salmon										Xa	Xa	Xa												Xb	Xb	Xb	
1351 Harbour porpoise																											
1364 Grey seal																											
1365 Harbour seal																											
1044 Southern damselfly																											
1065 Marsh fritillary butterfly																											
1083 Stag beetle																											
1096 Brook lamprey																											
1166 Great crested newt																											
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1308 Barbastelle																											
1324 Greater mouse-eared bat																											
5315 Bullhead																											
6199 Jersey tiger																											
1110 Sandbanks which are slightly covered by sea water all the time																											
1130 Estuaries																											
1140 Mudflats and sandflats not covered by seawater at low tide																											
1170 Reefs																											
1210 Annual vegetation of drift lines																											
1220 Perennial vegetation of stony banks																											

Name of European site and designation: Estuaire de la Seine SAC (Fish)																														
EU Code: FR2300121																														
Distance to NSIP: 90 km																														
European site features	Adverse Effect on Integrity from the Proposed Development																													
Effect	Increased SSC			Physical Injury			Invasive species			Pollution events			Noise and vibration			Visual Disturbance			EMF			Temperature changes			In combination effects					
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
1310 Salicornia and other annuals colonizing mud and sand																														
1330 Atlantic salt meadows																														
2110 Embryonic shifting dunes																														
2120 Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")																														
2130 Fixed coastal dunes with herbaceous vegetation ("grey dunes")																														
2160 Dunes with Hippophae rhamnoides																														
2180 Wooded dunes of the Atlantic, Continental and Boreal region																														
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3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.																														
3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation																														
3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation																														
6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia)																														
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels																														
6510 Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)																														
9120 Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robur-petraeae or Ilici-Fagenion)																														
9130 Asperulo-Fagetum beech forests																														
9180 Tilio-Acerion forests of slopes, screes and ravines																														

Evidence supporting conclusions:

- a. Adoption of routine best practice management measures will ensure that the risk of pollution events (including litter) is minimised as far as is practicable, and as such there is no potential for adverse effects on integrity. These measures will be agreed through production of a Construction Environmental Management Plan (CEMP) and associated Marine Pollution Contingency Plan (MPCP). Therefore, there is no adverse effect on site integrity (HRA Report (APP-491, Rev 002) Section 10.21, Table 10.51).
- b. Similar best practice measures are employed for the other plans and projects identified which could contribute to in combination effects. When residual effects are considered in combination with potential effects resulting from other relevant plans or projects (Table 2 of Appendix 3) it is considered that there is no potential for adverse effects on site integrity in combination with other projects and plans. HRA Report (APP-491, Rev 002) Section 10.21, Table 10.51).