The Great Grid Upgrade

Sea Link

Preliminary Environmental Information Report

Volume: 1

Part 4 Offshore Scheme

Chapter 12 Offshore Scheme Inter-Project Cumulative Effects

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Contents

Table of Tables

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4.12 Offshore Scheme Inter-Project Cumulative Effects

4.12.1 Introduction

4.12.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents how the preliminary inter-project cumulative effects assessment has considered the potential significant cumulative effects that may arise from the Offshore Scheme with 'other developments'. A description of inter-project cumulative effects and the methodology is presented in **Volume 2, Appendix 1.5.A, Cumulative Effects Assessment Methodologies**.

4.12.1.2 The draft Order Limits, which illustrate the boundary of the Proposed Project, are illustrated on **Figure 1.1.1 Draft Order Limits** and the Offshore Scheme Boundary is illustrated on **Figure 1.1.4 Offshore Scheme Boundary**.

4.12.1.3 This chapter should be read in conjunction with:

- **Volume 1, Part 1, Chapter 4, Description of the Proposed Project**;
- **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology**;
- **Volume 1, Part 1, Chapter 6, Scoping Opinion and Consultation**; and
- **Volume 1, Part 4, Chapter 1, Evolution of the Offshore Scheme**.

4.12.1.4 This chapter is supported by the following appendices:

- **Volume 2, Appendix 1.5.A, Cumulative Effects Assessment Methodologies**;
- **Volume 2, Appendix 1.5.B Inter-project Cumulative Effects Initial Long List;** and
- **Volume 2, Appendix 4.12.A, Descriptions of Other Projects**.

4.12.2 Assessment

Stage 1

Review of the Zone of Influence (ZOI)

4.12.2.1 The first step in identifying the long list was to establish the Zone of Influence (ZOI) for the Offshore Scheme. **Volume 2, Appendix 1.5.A, Cumulative Effects Assessment Methodologies** presents how the ZOI has been defined based upon the largest study area of the Offshore technical chapters (**Volume 1, Part 4, Chapters 2-10**) and doubling that area in order to identify a long list of 'other developments'. These study areas take into account environmental influences such as metocean conditions originating at distance from the Offshore Scheme and the wide-ranging nature of mobile species.

4.12.2.2 During Scoping an overall cumulative assessment ZOI of 31 km was proposed. This was based upon the Offshore Scheme potentially resulting in disturbance effects of up to 5 km for marine mammals from geophysical surveys, and other developments which could have a disturbance effect up to 26 km (impact piling and high order unexploded ordnance (UXO) detonation). However, this is an iterative process, and it is acknowledged that there are a number of proposed offshore wind farm developments in the North Sea that, if progressed, would be undertaking piling activities which would have a larger ZOI in comparison to the activities for the Proposed Project.

4.12.2.3 It should be noted that clearance of UXO, which can generate significant underwater sound levels, will be subject to a separate marine licence application for the Proposed Project when the number and location of detonations have been identified. Therefore, effects from UXO clearance are not considered in this assessment.

4.12.2.4 This ZOI has been backchecked as part of this PEIR to take account of any changes in the proposed study areas since scoping. The study areas applied in the technical chapter numbers 2-10 are summarised in Table 4.12.1. The rationale for these study areas are explained in section 6 of the relevant technical chapters 2-10. These study areas were presented during Scoping and discussed with stakeholders prior to submission of this PEIR as required. The initial long list of other developments presented in **Volume 2, Appendix 1.5.B Inter-project Cumulative Effects Initial Long List** has been updated to reflect any additional other developments that have been considered since Scoping.

Table 4.12.1: Study Areas for environmental topics

Environmental topic	Study areas
Physical Environment	Regional
Benthic Ecology	10 km from Offshore Scheme Boundary
Fish and Shellfish	15 km from Offshore Scheme Boundary, with a 50 km zone for the consideration of migratory fish. Also included since scoping a number of named spawning grounds following regulator feedback.
Marine Mammals	Inter-Agency Marine Mammal Working Group (IAMMWG)/Special Committee on Seals (SCOS) Marine Management Units
Ornithology	10 km from Offshore Scheme Boundary
Marine Archaeology	Offshore Scheme Boundary
Shipping and Navigation	10 NM from Offshore Scheme Boundary
Commercial Fisheries	International Council for the Exploration of the Sea (ICES) Rectangles 31F1, 32F1, and 33F1
Other Sea Users	10 km from Offshore Scheme Boundary

Stage 2

4.12.2.5 Table 4.12.2 below presents the long list of other developments considered during stage 1 and 2. This list has been kept under review throughout the preparation of the PEIR and has been updated as required. Where other developments have been struck through (~~example~~) this is because they were previously identified for inclusion but are not now being included because the development has been withdrawn, completed or expected to be complete prior to the construction of the Proposed Project and therefore is considered as part of the baseline for the preliminary assessment.

4.12.2.6 Other developments that following a review of the ZOI, were previously unknown or that have been identified through stakeholder engagement since the Scoping Report was published have been added in bold (**bold**).

Table 4.12.2: Major Developments 'Long List' to be considered in the Inter-Project Cumulative Effects Assessment (CEA)

Other development	Development description	Tier	Distance from the Project (km)	Distance from the Offshore Scheme (km)
Sizewell C Nuclear Power Station	A proposed expansion of the Sizewell nuclear licence site north of Sizewell B Nuclear Power Station. This will accommodate two new European pressurised reactors (EPR) with a 3.2 GW electricity generation capacity. This will provide electricity for 6 million homes.	1	2.5	5
NeuConnect Interconnector	A proposed 1.4 GW capacity offshore multipurpose interconnector (MPI) project from Wilhemshaven, Germany to the Isle of Grain, Kent developed by Meridam, Allianz Capital and Kansai Electric Power. This project aims to be the first energy connection between the UK and Germany in order to transfer energy between the two countries and increase grid capacity for increased electricity demand and supply from offshore wind assets. The offshore aspects of this development are the High Voltage Direct Current (HVDC) subsea cable and cable landfall location.	1	0	0
GridLink Interconnector	A proposed 1.4 GW capacity offshore MPI project from	1	0	0

Other development	Development description	Tier	Distance from the Project (km)	Distance from the Offshore Scheme (km)
	Dunkerque, France to Kingsnorth, Kent developed by iCON Infrastructure LLP. It aims to transfer energy between the UK and France providing electricity to 2.2 million homes. Additionally, it aims to improve grid capacity for increases in offshore wind electricity generation. The offshore, coastal and intertidal components of the project will consist of the following: HVDC Subsea Cable & Landfall Location.			
North Falls Offshore Windfarm	The main Offshore Wind Array will be located off the Essex and Suffolk coastline developed by Scottish and Southern Electricity (SSE) and RWE. The wider array will be split over two separate arrays cumulatively consisting of 71 wind turbine generators across a 150 km^2 area. The maximum wind turbine height will be 397 m above Mean High Water Spring (MHWS) and will be supported by either monopile, pin pile, suction caisson, or Gravity Base Structure foundations.	2	0	0
East Anglia ONE North Offshore Windfarm	A proposed 208 km^2 wind farm developed by Scottish Power Renewables (SPR) consisting of 67 turbines with a combined electricity generation capacity of 800 MW, an extension of the existing East Anglia ONE array. It is part of the East Anglia Hub which includes three arrays off the coast of Suffolk. Each wind turbine being 300 m above the Lowest Astronomical Tide (LAT) and will use either 3-4 leg jackets on piles or suction caissons, monopiles of Gravity Base structures as foundations and	1	0	0.36

Other development	Development description	Tier	Distance from the Project (km)	Distance from the Offshore Scheme (km)
	will be placed between 33 m to 67 m deep.			
East Anglia TWO Offshore Windfarm	A proposed 255 km^2 wind farm developed by SPR consisting of 75 turbines. Each turbine will have an electricity generation capacity of 19 MW and 22 m high above MHWS. The foundations will either use 3-4 leg jackets on piles or suction caissons, monopiles of Gravity Base structures and be placed between 33 m to 67 m deep.	1	0	0.36
East Anglia THREE Offshore Windfarm	A proposed 370 km^2 wind farm developed by SPR and Vattenfall consisting of 120 to 240 wind turbines with a combined electricity generation capacity of 1200 MW It is part of the East Anglia Hub which includes three arrays off the coast of Suffolk, with the East Anglia THREE array being 79 km from Lowestoft, Suffolk. All wind turbines are located in a water depth of 35 m to 45 m with the tip of the turbine blade 245 m above LAT. Each turbine will be secured with whether jacket on piles, tripods on piles, Gravity Base structures, suction caissons or monopiles foundations. Specific foundation designs will be decided later as the development progresses.	1	0	0
Nautilus Offshore Interconnector	A 1.4 GW capacity MPI connecting Belgium with the Suffolk Coast being developed by National Grid Ventures (NGV) The aim will be to increase transfer in offshore wind electricity generation and improve grid capacity in both countries to achieve this. The offshore aspect of the development includes: Subsea HVDC connecting the Belgian landfall with the UK landfall in Suffolk and Offshore HVDC converter platform.	2	0	0

Other development	Development description	Tier	Distance from the Project (km)	Distance from the Offshore Scheme (km)
Five Estuaries Offshore Windfarm	A proposed 149 km^2 wind farm jointly developed by RWE 37 km off the Suffolk Coast. The array consists of 79 turbines with a combined electricity generation capacity of 50 GW. Each turbine will be between 397 m high above MHWS with a 337 m rotor diameter tip to tip. Turbines will be anchors by either monopile, suction bucket monopile, pin piled or Gravity Base monopile foundations.	2	0	0
Lionlink (formally Eurolink) Offshore Interconnector	A 1.8 GW MPI connecting the Netherlands and the UK developed by NGV. The aim will be to increase transfer in offshore wind electricity generation and improve grid capacity in both countries to achieve this. This aims to advance key NGV and UK Government goals including transitioning to Net Zero by 2030, enhancing energy security and affordability. The offshore aspect of the development includes: Subsea HVDC connecting the Belgian landfall with the UK landfall in Suffolk and Offshore HVDC converter platform.	3	0	0
Hanson Aggregate Marine Ltd Area 528/2	The application and option area for the exploration and extraction of marine aggregates	3	<0.5	0.1

4.12.2.7 Table 4.12.3 to Table 4.12.13 provide a summary of stage 1 and 2 of the Offshore Scheme inter-project CEA. These tables provide details for the ‘other developments’ listed above and identifies which of the topic specific ZOIs the ‘other development’ falls within and evaluates if the ‘other development’ should be taken forward to stage 3 and 4 of the assessment.

Table 4.12.3 Matrix Summarising stage 1 and 2 of the Inter-Project CEA - Sizewell C Nuclear Power Plant

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Sizewell C Nuclear Power Plant					
Physical Environment	**Yes**	**Yes**	Potential overlap between the construction and operational phase	Simultaneous cable burial operations with the placement of the input cooling pipelines for Sizewell C which are to be located 3 km offshore (5.38 km northeast of the Proposed Project), may increase the amount of sediment disturbed and released into the water column. This may impact the Coraline Crag Ridges as sediment can be carried in suspension south from the Sizewell C and north from the Sea Link development on one tidal cycle. Deposition of sediment onto the Crags may then alter the surficial sediment composition of the Ridges. There is also the potential for changes to water circulation patterns or water quality at the location of the offshore intake(s) at Sizewell.	**Yes**
Benthic Ecology	**No**	**No**	Potential overlap between construction phases	Sizewell C Nuclear Power Plant will undergo an Environmental Impact Assessment (EIA) with suitable mitigation measures recommended. The Proposed Projects will not	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				physically overlap and are located over 5 km apart. Cumulative disturbance to benthic receptors is therefore not likely between projects. **Not likely to have significant effect**.	
Fish and Shellfish Ecology	**No**	**No**	Potential overlap between construction phases	Sizewell C Nuclear Power Plant will undergo EIA with suitable mitigation measures recommended. The Proposed Projects will not physically overlap and are located over 5 km apart. Cumulative disturbance to fish and shellfish receptors is therefore not likely between projects. **Not likely to have significant effect**.	**No**
Marine Mammals	**Yes**	**Yes**	Potential overlap between construction phases	Sizewell C Nuclear Power Plant will undergo EIA with suitable mitigation measures recommended. Simultaneous construction activities in and adjacent to the marine environment could increase the level of disturbance to marine mammals. The maximum ZOI for behavioural disturbance predicted for the Proposed Project, for non UXO (which is not assessed as it will be the subject of a separate marine licence application) activities	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				generating underwater sound will be 5 km, which relates to geophysical sound sources. However, UXO clearance, which has a ZOI of 26 km, may be required for Sizewell.	
Marine Ornithology	**Yes**	**Yes**	Potential overlap between construction phases	Sizewell C Nuclear Power Plant will undergo EIA with suitable mitigation measures recommended. Simultaneous construction activities in and adjacent to the marine environment could increase the levels of disturbance to birds occurring in the marine environment. However, the Sizewell C Offshore Works are considered to be located at a suitable distance away (approx. 5 km) from the Proposed Project for significant cumulative effects to occur, particularly given the mobile nature and low sensitivities to disturbance in the marine environment shown by gulls and terns. Appropriate commitments are provided in the Sizewell C EIA to secure suitable mitigation measures to minimise project specific impacts. **Not likely to have significant effect.**	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Marine Archaeology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Sizewell C Nuclear Power Plant has undergone EIA with suitable mitigation measures recommended. The Projects will not physically overlap and are located over 5 km apart. With regards to seabed heritage receptors (known and potential maritime and aviation features) located within the Proposed Project area, it is unlikely that they will be directly or indirectly impacted by changes to the physical processes environment caused by the construction or operation of the nuclear power plant. Relevant shared receptors include: Sub-seabed heritage receptors (known and potential palaeogeography and buried maritime and aviation features) - **Not likely to have significant effect.** Seabed heritage receptors (known and potential maritime and aviation features) - **Not likely to have significant effect.** Intertidal heritage receptors (known and potential palaeogeography, historic terrestrial, marine and	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				aviation features) – **Not likely to have significant effect.** Historic seascape character of the region - **Not likely to have significant effect.**	
Shipping Navigation	**Yes**	**Yes**	Potential overlap during construction phase.	Sizewell C Nuclear Power Plant will undergo EIA with suitable mitigation measures recommended. The Proposed project will impose and patrol a 500 m radius exclusion zone moving at between 0.5 m and 5 km per day. Nearby vessels are expected to be either aware prior to, and/or contacted directly by the patrol to observe the exclusion zone. Any hazardous marine activity associated with Sizewell C construction, some 5 km north, will also likely establish exclusion zones of a similar size, and will also inform vessels using the area appropriately. These small spatial footprints and/or exclusion zones are unlikely to combine for any protracted period or with significant disruption to vessels using the area and as such represent very limited cumulative effect over and above effects already identified and addressed by the	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				development embedded mitigation measures. **Not likely to have significant effect.**	
Commercial Fisheries	**Yes**	**Yes**	Potential overlap between the construction and operational phases	Sizewell C Nuclear Power Plant will undergo EIA with suitable mitigation measures recommended. During the construction phase of this Project a 500 m exclusion zone will be enforced around the cable installation activities: with timely communication to sea users. With Sizewell C located over 5 km North of the Proposed Project there is no likely overlap in any exclusion zones. Furthermore, the exclusion zone for this Project will move between 0.5 to 5 km a day. As such, this Project's works taking place within the relative vicinity of Sizewell C activities will be extremely short-term. The footprint of this Project's cable will be small; thus, it is unlikely to substantially add to any effects from construction and operation of Sizewell C's offshore infrastructure. Additionally, fishing grounds in the region appear to be widespread, and fishers spatially and operationally flexible.	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				With this in mind, mitigation implemented by both Projects is anticipated to be sufficient in minimising their respective effects with very limited opportunity for significant cumulative effects. **Not likely to have significant effect**.	
Other Sea Users	**Yes**	**Yes**	Potential overlap during construction phase.	Sizewell C Nuclear Power Plant will undergo EIA with suitable mitigation measures recommended. Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones. Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project. Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVigational TEleX (NAVTEX), and/or broadcast	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				warnings. **Not likely to have significant effect.**	

Table 4.12.4 Matrix Summarising stage 1 and 2 of the Inter-Project CEA - NeuConnect

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Neuconnect					
Physical Environment	**Yes**	**Yes**	Potential overlap between the construction and operational phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and released into the water column. External protection on the HVDC cables including pre- and post-lay rock placement. Neuconnect has started construction in 2022. The cable crossing with Neuconnect is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 2: Physical Environment**. A wider area of seafloor morphology and seafloor morphological features (i.e. bedforms) may be altered during the simultaneous installation activities.	**Yes**
Benthic Ecology	**Yes**	**Yes**	Potential overlap between the construction	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on the benthic habitats. The Proposed	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
			and operational phases	Project and Neuconnect cross at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. Thus, the key potential effects where the two HVDC will cross are direct habitat loss from placement of cable protection; Electromagnetic field (EMF) and thermal effects to habitats and benthic communities and introduction of invasive non-native species (INNS). Neuconnect has started construction in 2022. The cable crossing with Neuconnect is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 3, Benthic Ecology**.	
Fish and Shellfish Ecology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on herring and sandeel spawning grounds. The Proposed Project and Neuconnect cross at one location,	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. Thus, the key potential effects where the two HVDC will cross EMF and thermal effects. Neuconnect has started construction in 2022. The cable crossing with Neuconnect is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 4, Fish and Shellfish**.	
Marine Mammals	**Yes**	**Yes**	Potential overlap between the construction phases	Simultaneous construction may increase the level of underwater sound disturbance to marine mammals.	**Yes**
Marine Ornithology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver, as well as increasing	**Yes –** Disturbance and displacement of red-throated diver

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				temporary disturbance to foraging habitats and further decreasing water quality. Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases suspended sediment are likely to be highly localised over a small spatial overlap where Neuconnect crosses the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea. The Neuconnect EIA found the presence of red-throated diver and other foraging seabirds to be low in the vicinity of its project and in isolation both projects are unlikely to result in significant effects to red-throated diver or other birds.	

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				However, unmitigated, there is the potential for construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. For all other species, **no likely significant effect** is anticipated.	
Marine Archaeology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Neuconnect has undergone an EIA with suitable mitigation measures recommended. It is essential to ensure that at the intersection of both Proposed Projects that the depth of the trench(es) and any use of external cable protection are fully assessed as part of the EIA for the potential for direct and indirect impact to marine archaeological receptors. This assessment for the Proposed Project has been included in the PEIR based on the design information to date. Relevant shared receptors include: Sub-seabed heritage receptors (known and potential palaeogeography and buried maritime and aviation features).	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Seabed heritage receptors (known and potential maritime and aviation features). Historic seascape character of the region.	
Shipping Navigation	**Yes**	**Yes**	Potential overlap during construction and operation phases.	The Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as that already foreseen with Neuconnect. Crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable crossing with Neuconnect is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Part 4,**	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Volume 1, Part 4, Chapter 8: Shipping and Navigation. Ultimately this crossing presents only an incremental increase in potential hazard to fishing gear and anchors which is suitably addressed via risk based burial approach and crossing design. **Not likely to have significant effect.**	
Commercial Fisheries	**Yes**	**Yes**	Potential overlap during construction and operation phases.	The cable crossing with Neuconnect is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 9, Commercial Fisheries**. A 500 m exclusion zone will be implemented around the cable installation activities: with timely communication to sea users. As such, the combined implementation of exclusion zones during simultaneous cable lay would increase their overall spatial extent. However, these zones will be transient, moving between 0.5 km and 5 km a day; and small in relation to widespread fishing grounds in the	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				region. Thus, there is expected to be minor potential obstruction, displacement, loss of grounds, and indirect ecological effects for fishers; and negligible potential loss or damage of fishing gear. **Not likely to have significant effect.**	
Other Sea Users	**Yes**	**Yes**	Potential overlap during construction and operation phases.	The Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as that already foreseen with Neuconnect. Crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable crossing with Neuconnect is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 10: Other Sea Users**. Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones. Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project. Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. **Not likely to have significant effect.**	

Table 4.12.5 Matrix Summarising stage 1 and 2 of the Inter-Project CEA - GridLink Interconnector

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
GridLink Interconnector					
Physical Environment	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and released into the water column. External protection on the HVDC cables including pre- and post-lay rock placement. The cable crossing with Gridlink is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 2, Physical Environment**.	**Yes**
Benthic Ecology	**Yes**	**Yes**	Potential overlap between the construction and operational phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on the benthic habitats. The Proposed Project and GridLink cross at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. Thus, the key potential	**Yes**

				effects where the two HVDC will cross are direct habitat loss from placement of cable protection; EMF and thermal effects to habitats and benthic communities and introduction of INNS. The cable crossing with Gridlink is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 3, Benthic Ecology**.	
Fish and Shellfish Ecology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on herring and sandeel spawning grounds. The Proposed Project and GridLink cross at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. Thus, the key potential effects where the two HVDC will cross EMF and thermal effects. The cable crossing with Gridlink is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 4, Fish and Shellfish**.	**Yes**

Marine Mammals	**Yes**	**Yes**	Potential overlap between the construction phases	Simultaneous construction may increase the level of underwater sound disturbance to marine mammals.	**Yes**
Marine Ornithology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver, as well as increasing temporary disturbance to foraging habitats and further decreasing water quality. Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases suspended sediment are likely to be highly localised over a small spatial overlap where GridLink Interconnector crosses the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea.	**Yes -** Disturbance and displacement of red-throated diver

				In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. For all other species, **no likely significant effect** is anticipated.	
Marine Archaeology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	GridLink has undergone EIA with suitable mitigation measures recommended. It is essential to ensure that at the intersection of both Proposed Projects that the depth of the trench(es) and any use of external cable protection are fully assessed for the potential for direct and indirect impact to marine archaeological receptors. This assessment for the Proposed Project has been included in the PEIR based on the design information to date. Relevant shared receptors include: Sub-seabed heritage receptors (known and potential palaeogeography and buried maritime and aviation features). Seabed heritage receptors (known and potential maritime and aviation features).	**Yes**

				Historic seascape character of the region**.**	
Shipping Navigation	**Yes**	**Yes**	Potential overlap during construction and operational phases.	The Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor such as that already foreseen with GridLink Interconnector. Crossings will be undertaken using agreed crossing designs and schedules in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable crossing with Gridlink is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 8, Shipping and Navigation**. Ultimately this crossing presents only an incremental increase in potential hazard to fishing gear and anchors which is suitably addressed via risk based burial approach and crossing design.	**No**

				Not likely to have significant effect.	
Commercial Fisheries	**Yes**	**Yes**	Potential overlap during construction and operation phases.	GridLink has undergone EIA with appropriate mitigation recommended. The crossing of cables is expected to be handled with standard industry practice, as exemplified by other crossings in this Project's design. The cable crossing with Gridlink is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 9, Commercial Fisheries**. Similar mitigation measures to this Project are expected to be implemented by GridLink, including a 500 m exclusion zone around the cable installation activities: with timely communication to sea users. As such, the combined implementation of exclusion zones during simultaneous cable lay would increase their overall spatial extent. However, these zones will be transient, moving between 0.5 km and 5 km a day; and small in relation to widespread fishing grounds in the region. Thus, there is expected to be minor potential obstruction, displacement, loss of grounds, and indirect ecological effects for fishers;	**No**

				and negligible potential loss or damage of fishing gear. **Not likely to have significant effect.**	
Other Sea Users	**Yes**	**Yes**	Potential overlap during construction and operation phases.	The Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor, such as that already foreseen with Gridlink. Crossings will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable crossing with Gridlink is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 10: Other Sea Users**. Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones. Whilst there may be a slight increase in potential interruption to	**No**

		recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project. Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. **Not likely to have significant effect.**

Table 4.12.6 Matrix Summarising stage 1 and 2 of the Inter-Project CEA - North Falls Offshore Windfarm

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
North Falls Offshore Windfarm					
Physical Environment	**Yes**	**Yes**	Potential overlap during construction and operation phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and released into the water column. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. However, these crossings are included as part of the project design and do not constitute cumulative effects. A wider area of seafloor morphology and seafloor morphological features (i.e. bedforms) may be altered during the simultaneous installation activities.	**Yes**
Benthic Ecology	**Yes**	**Yes**	Potential overlap between the construction and operational phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on the benthic habitats. The Proposed Project and North Falls cross at one location, where there is expected to be cable crossing protection required. This will involve either rock	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				placement and/or addition of mattresses. Thus, the key potential effects where the two HVDC will cross are direct habitat loss from placement of cable protection; EMF and thermal effects to habitats and benthic communities and introduction of INNS. The cable crossing with North Falls OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 3, Benthic Ecology**.	
Fish and Shellfish Ecology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on herring and sandeel spawning grounds. The Proposed Project and North Falls cross at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. Thus, the key potential effects where the two HVDC will cross are EMF and thermal effects. The cable crossing	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				with North Falls OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 4, Fish and Shellfish**.	
Marine Mammals	**Yes**	**Yes**	Potential overlap between the construction phases	Simultaneous construction may increase the level of underwater sound disturbance to marine mammals.	**Yes**
Marine Ornithology	**Yes**	**Yes**	Potential overlap between the construction phases	Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver, as well as increasing temporary disturbance to foraging habitats and further decreasing water quality. Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving	**Yes -** Disturbance and displacement of red-throated diver

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				and only present in discrete areas for a short amount of time. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases suspended sediment are likely to be highly localised over a small spatial overlap where North Falls Offshore Windfarm crosses the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea. In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. For all other species, **no likely significant effect** is anticipated.	

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Marine Archaeology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	North Falls Offshore Windfarm will undergo EIA with suitable mitigation measures recommended. It is essential to ensure that at the intersection of both Proposed Projects that the depth of the trench(es) and any use of external cable protection are fully assessed for the potential for direct and indirect impact to marine archaeological receptors. This assessment for the Proposed Project has been included in the PEIR based on the design information to date. Relevant shared receptors include: Sub-seabed heritage receptors (known and potential palaeogeography and buried maritime and aviation features). Seabed heritage receptors (known and potential maritime and aviation features). Historic seascape character of the region.	**Yes**
Shipping Navigation	**Yes**	**Yes**	Potential overlap during construction and operational	The Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
			phases due to cable crossing.	installed and/or planned along the corridor such as that already foreseen with North Falls Offshore Windfarm. Crossings will be undertaken using agreed crossing designs and schedules in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable crossing with North Falls OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 8: Shipping and Navigation**. Ultimately this crossing presents only an incremental increase in potential hazard to fishing gear and anchors which is suitably addressed via risk based burial approach and crossing design.	

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Not likely to have significant effect. Cable installation vessel movement may coincide with vessel activities associated with the surface features of the windfarm. However, given the short temporal envelope of the construction phase, range of advance promulgations in place informing all sea users of the brief operation and the large existing prevalence of shipping activity, no significant cumulative effects are foreseen. **Not likely to have significant effect.**	
Commercial Fisheries	**Yes**	**Yes**	Potential overlap during construction and operational phases due to cable crossing.	North Falls Offshore Wind Farm (OWF) is expected to have undergone EIA with appropriate mitigation recommended. The multiple cable crossings are expected to be handled with standard industry practice, as exemplified by other crossings in this Project's design. The cable crossing with North Falls OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				it is already considered in **Volume 1, Part 4, Chapter 9, Commercial Fisheries**. Similar mitigation measures to this Project are expected to be implemented by North Falls, including a 500 m exclusion zone around the cable installation activities: with timely communication to sea users. As such, the combined implementation of exclusion zones during simultaneous cable lay would increase their overall spatial extent. However, these zones will be transient, moving between 0.5 km and 5 km a day; and small in relation to widespread fishing grounds in the region. Thus, there is expected to be minor potential obstruction, displacement, loss of grounds, and indirect ecological effects for fishers; and negligible potential loss or damage of fishing gear, in relation to the cables. The proposed location of the OWF arrays appear to partially overlap with the Study Area for commercial fisheries. However, the commercial fisheries PEIR chapter for this Project considers there to be no	

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				significant obstruction, loss of fishing grounds, displacement, loss or damage to gear, or indirect ecological effects through all phases of this Project. This is primarily due to the small extent of the cable, the localised and mostly transient effects, and widespread fishing grounds in the region. **Not likely to have significant effect.**	
Other Sea Users	**Yes**	**Yes**	Potential overlap during construction and operational phases due to cable crossing.	The Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor such as that already foreseen with North Falls Offshore Windfarm. Crossings will be undertaken using agreed crossing designs and schedules in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable	

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				crossing with North Falls OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 10, Other Sea Users**. Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones. Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project. Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. **Not likely to have significant effect.**	

Table 4.12.7 Matrix Summarising stage 1 and 2 of the Inter-Project CEA - East Anglia ONE North Offshore Windfarm

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
East Anglia ONE North Offshore Windfarm					
Physical Environment	**Yes**	**Yes**	Potential overlap between the construction and operational phases	Both projects are in close proximity to the Coraline Crag Ridges. The cumulative impact of the projects on this geological feature may change the surficial sediment composition of the Ridges, as the combined amount of sediment suspended during cable burial operations are transported and deposited onto the ridges.	**Yes**
Benthic Ecology	**Yes**	**Yes**	Potential overlap between the construction and operational phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on the benthic habitats, EMF and thermal effects to habitats and benthic communities and introduction of INNS.	**Yes**
Fish and Shellfish Ecology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on herring and sandeel spawning grounds and operations.	**Yes**
Marine Mammals	**Yes**	**Yes**	Potential overlap	Simultaneous construction may increase the level of underwater	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
			between the construction phases	sound disturbance to marine mammals.	
Marine Ornithology	**Yes**	**Yes**	Potential overlap between construction and operation phases	Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver, as well as increasing temporary disturbance to foraging habitats and further decreasing water quality. Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases suspended sediment are likely to be highly localised over a small spatial overlap where East Anglia ONE North Offshore	**Yes -** Disturbance and displacement of red-throated diver

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Windfarm is in close proximity to the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea. In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. For all other species, **no likely significant effect** is anticipated.	
Marine Archaeology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	East Anglia ONE North OWF has undergone EIA with suitable mitigation measures recommended. East Anglia ONE North OWF and the Proposed Project will not physically overlap, however, with regards to seabed heritage receptors (known and potential maritime and aviation features) located within the Proposed Project area, it would be beneficial to understand the physical processes	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				environment within the operating offshore windfarm area that could cause indirect impacts to these receptors. Relevant shared receptors include: Sub-seabed heritage receptors (known and potential palaeogeography and buried maritime and aviation features). Seabed heritage receptors (known and potential maritime and aviation features). Historic seascape character of the region.	
Shipping Navigation	**Yes**	**Yes**	Potential overlap during construction and operational phases due to cable crossing.	Cable installation vessel movement may coincide with vessel activities with the surface features of the windfarm. However, given the short temporal envelope of the construction phase, range of advance promulgations in place informing all sea users of the brief operation and the large existing prevalence of shipping activity, no significant cumulative effects are foreseen. **Not likely to have significant effect.**	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Commercial Fisheries	**Yes**	**Yes**	Potential overlap during construction and operational phases.	East Anglia ONE North OWF has undergone EIA with appropriate mitigation recommended. The cable route for East Anglia ONE is not expected to have a crossing point with this Project; instead, they will likely run parallel for a short distance, close to landfall in Suffolk. Similar mitigation measures to this Project are expected to be implemented by East Anglia ONE, including a 500 m exclusion zone around the cable installation activities: with timely communication to sea users. As such, the combined implementation of exclusion zones during simultaneous cable lay would increase their overall spatial extent. However, these zones will be transient, moving between 0.5 km and 5 km a day; and small in relation to widespread fishing grounds in the region. Thus, there is expected to be minor potential obstruction, displacement, loss of grounds, and indirect ecological effects for fishers; and negligible potential loss or damage of fishing gear, in relation to the cables.	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				The proposed location of the OWF arrays is outside of the Study Area for commercial fisheries. Thus, it is unlikely for there to be any additive or synergistic effects between this Project and any potential array effects. **Not likely to have significant effect.**	
Other Sea Users	**Yes**	**Yes**	Potential overlap during construction and operational phases.	Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones. Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project. Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. **Not likely to have significant effect.**	**No**

Table 4.12.8 Matrix Summarising stage 1 and 2 of the Inter-Project CEA - East Anglia TWO Offshore Windfarm

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
East Anglia TWO Offshore Windfarm					
Physical Environment	**Yes**	**Yes**	Potential overlap during construction and operation phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and released into the water column. Both projects are in close proximity to the Coraline Crag Ridges. The cumulative impact of the projects on this geological feature may be to change the surficial sediment composition of the Ridges as the combined amount of sediment suspended during cable burial operations are transported deposited onto the ridges. The impact is likely to be temporary as the finer sediment is likely to be re-suspended under higher current speeds or storm wave activity. However, some small, localized zones that are sheltered from current and wave action may experience permanent change to the sediment composition. A commitment has been made for East Anglia TWO to install the export cable using HDD techniques to	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				minimise disturbance south of the Coraline Crag ridges and at landfall.	
Benthic Ecology	**Yes**	**Yes**	Potential overlap between the construction and operational phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on the benthic habitats, EMF and thermal effects to habitats and benthic communities and introduction of INNS.	**Yes**
Fish and Shellfish Ecology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on herring and sandeel spawning grounds and operations.	**Yes**
Marine Mammals	**Yes**	**Yes**	Potential overlap between the construction phases	Simultaneous construction may increase the level of underwater sound disturbance to marine mammals.	**Yes**
Marine Ornithology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-	**Yes -** Disturbance and displacement of red-throated diver

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				throated diver, as well as increasing temporary disturbance to foraging habitats and further decreasing water quality. Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases suspended sediment are likely to be highly localised over a small spatial overlap where East Anglia TWO OWF is in close proximity to the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea. In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for construction activities associated with both projects to act	

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. For all other species, **no likely significant effect** is anticipated.	
Marine Archaeology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	East Anglia TWO OWF has undergone EIA with suitable mitigation measures recommended. The Projects will not physically overlap, however, with regards to seabed heritage receptors (known and potential maritime and aviation features) located within the Proposed Project area, it would be beneficial to understand the physical processes environment within the operating offshore windfarm area that could cause indirect impacts to these receptors. Relevant shared receptors include: Sub-seabed heritage receptors (known and potential palaeogeography and buried maritime and aviation features).	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Seabed heritage receptors (known and potential maritime and aviation features). Historic seascape character of the region.	
Shipping Navigation	**Yes**	**Yes**	Potential overlap during construction and operational phases.	Cable installation vessel movement may coincide with vessel activities with the surface features of the windfarm. However, given the short temporal envelope of the construction phase, range of advance promulgations in place informing all sea users of the brief operation and the large existing prevalence of shipping activity, no significant cumulative effects are foreseen. **Not likely to have significant effect.**	**No**
Commercial Fisheries	**Yes**	**Yes**	Potential overlap during construction and operational phases.	East Anglia TWO OWF has undergone EIA with appropriate mitigation recommended. The cable route for East Anglia TWO is not expected to have a crossing point with this Project; instead, they will likely run parallel for a short distance, close to landfall in Suffolk. Similar mitigation measures to this Project are expected to be	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				implemented by East Anglia TWO, including a 500 m exclusion zone around the cable installation activities: with timely communication to sea users. As such, the combined implementation of exclusion zones during simultaneous cable lay would increase their overall spatial extent. However, these zones will be transient, moving between 0.5 km and 5 km a day; and small in relation to widespread fishing grounds in the region. Thus, there is expected to be minor potential obstruction, displacement, loss of grounds, and indirect ecological effects for fishers; and negligible potential loss or damage of fishing gear, in relation to the cables. The proposed location of the OWF array appears to be located within the Study Area for commercial fisheries. However, **Volume 1, Part 4, Chapter 9, Commercial Fisheries** for this Project considers there to be no significant obstruction, loss of fishing grounds, displacement, loss or damage to gear, or indirect ecological effects through all phases of this Project.	

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				This is primarily due to the small extent of the cable, the localised and mostly transient effects, and widespread fishing grounds in the region. **Not likely to have significant effect.**	
Other Sea Users	**Yes**	**Yes**	Potential overlap during construction and operational phases.	Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones. Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project. Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. **Not likely to have significant effect.**	**No**

Table 4.12.9 Matrix Summarising stage 1 and 2 of the Inter-Project CEA - East Anglia THREE Offshore Windfarm

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
East Anglia THREE Offshore Windfarm					
Physical Environment	**Yes**	**Yes**	Potential overlap between the construction and operational phases	The offshore cable corridor route of East Anglia THREE OWF crosses over the Sea Link cable approximately 10 km from the Sea Link landfall site. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable crossing with East Anglia THREE OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 2, Physical Environment**.	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				The East Anglia THREE OWF array will be located 79 km from the Suffolk coastline, this is greater than the 12 km tidal excursion ellipses associated with the offshore environment near Suffolk. Therefore, it is unlikely that sediment suspended due to scour at the base of the wind turbines will reach and deposit onto the sensitive Coraline Crag ridges. **Not likely to have significant effect.**	
Benthic Ecology	**Yes**	**Yes**	Potential overlap between the construction and operational phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on the benthic habitats, EMF and thermal effects to habitats and benthic communities and introduction of INNS. The cable crossing with East Anglia THREE OWF is included as part of the	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 3, Benthic Ecology**.	
Fish and Shellfish Ecology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on herring and sandeel spawning grounds and operations. The cable crossing with East Anglia THREE OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 4, Fish and Shellfish.**	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Marine Mammals	**Yes**	**Yes**	Potential overlap between the construction phases	Simultaneous construction may increase the level of underwater sound disturbance to marine mammals.	**Yes**
Marine Ornithology	**Yes**	**Yes**	Potential overlap between construction and operation phases	Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver, as well as increasing temporary disturbance to foraging habitats and further decreasing water quality. Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. The cumulative disturbance of seabed habitat and potential	**Yes –** Disturbance and displacement of red-throated diver

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases suspended sediment are likely to be highly localised over a small spatial overlap where East Anglia THREE Offshore Windfarm is in close proximity to the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea. In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or	

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				increase the frequency with which red-throated diver are displaced. For all other species, **no likely significant effect** is anticipated.	
Marine Archaeology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	East Anglia THREE OWF has undergone EIA with suitable mitigation measures recommended. It is essential to ensure that at the intersection of both Proposed Projects that the depth of the trench(es) and any use of external cable protection are fully assessed for the potential for direct and indirect impact to marine archaeological receptors. This assessment for the Proposed Project has been included in the PEIR based on the design information to date. Relevant shared receptors include: Sub-seabed heritage receptors (known and	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				potential palaeogeography and buried maritime and aviation features). Seabed heritage receptors (known and potential maritime and aviation features). Historic seascape character of the region.	
Shipping Navigation	**Yes**	**Yes**	Potential overlap during construction and operational phases.	The Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor such as that already foreseen with East Anglia THREE OWF. Crossings will be undertaken using agreed crossing designs and schedules in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable crossing with East Anglia THREE OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 8, Shipping and Navigation.** This presents only an incremental increase in potential hazard to fishing gear and anchors which is suitably addressed via developing risk based burial approach. **Not likely to have significant effect.**	
Commercial Fisheries	**Yes**	**Yes**	Potential overlap during construction and operational phases.	East Anglia THREE OWF has undergone EIA with appropriate mitigation recommended.	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				The cable crossing with this Project is expected to be handled with standard industry practice, as exemplified by other crossings in this Project's design. The cable crossing with East Anglia THREE OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 9, Commercial Fisheries.** Similar mitigation measures to this Project will be implemented by East Anglia THREE, including a 500 m exclusion zone around the cable installation activities: with timely communication to sea users. As such, the combined implementation of exclusion zones during simultaneous cable lay would increase their overall	

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				spatial extent. However, these zones will be transient, moving between 0.5 km and 5 km a day; and small in relation to widespread fishing grounds in the region. Thus, there is expected to be minor potential obstruction, displacement, loss of grounds, and indirect ecological effects for fishers; and negligible potential loss or damage of fishing gear, in relation to the cables. The proposed location of the OWF arrays is outside of the Study Area for commercial fisheries. Thus, it is unlikely for there to be any additive or synergistic effects between this Project and any potential array effects. **Not likely to have significant effect.**	
Other Sea Users	**Yes**	**Yes**	Potential overlap during construction and operational phases.	The Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				of any subsea infrastructure installed and/or planned along the corridor such as that already foreseen with East Anglia THREE OWF. Crossings will be undertaken using agreed crossing designs and schedules in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable crossing with East Anglia THREE OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Part 4,**	

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Volume 1, Chapter 10, Other Sea Users. Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones. Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project. Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. **Not likely to have significant effect.**	

Table 4.12.10 Matrix Summarising stage 1 and 2 of the Inter-Project CEA - Nautilus Offshore Interconnector

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Nautilus Interconnector					
Physical Environment	**Yes**	**Yes**	Potential overlap between the construction and operation phases	The cable route for Nautilus has not yet been finalised. Nautilus is expected to undergo an EIA with appropriate mitigation recommended. The Nautilus potential routing options at the Suffolk landfall currently overlap with the Proposed Project. Whilst the landfall could be shared at this landfall, the marine cables are unlikely to cross. Should the Nautilus landfall move to Kent, that there will be a crossing in marine waters. Any cable crossing with this Project is expected to be handled with standard industry practice, as exemplified by other crossings in this Project's design.	**Yes** – Nautilus Interconnector landfall, crossing points and installation techniques are presently unknown. Therefore, further assessment is required once this information is known to assess the potential cumulative impacts.
Benthic Ecology	**Yes**	**Yes**	Potential overlap between the construction and operational phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on the benthic habitats. The Proposed Project and Nautilus have the potential to cross at one	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. Thus, the key potential effects where the two HVDC will cross are direct habitat loss from placement of cable protection; EMF and thermal effects to habitats and benthic communities and introduction of INNS.	
Fish and Shellfish Ecology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on herring and sandeel spawning grounds. The Proposed Project and Nautilus have the potential to cross at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. Thus, the key potential effects where the two HVDC will cross are EMF and thermal effects.	**Yes**
Marine Mammals	**Yes**	**Yes**	Potential overlap between the	Simultaneous construction may increase the level of underwater	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
			construction phases	sound disturbance to marine mammals.	
Marine Ornithology	**Yes**	**Yes**	Potential overlap between the construction phases	Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver, as well as increasing temporary disturbance to foraging habitats and further decreasing water quality. Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases suspended sediment are likely to be highly localised over a small spatial overlap where the Nautilus Offshore Interconnector is	**Yes –** Disturbance and displacement of red-throated diver

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				in close proximity to the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea. In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. The Nautilus Offshore Interconnector is also expected to undergo EIA with similar suitable mitigation measures incorporated to reduce risk to seabirds.	
Marine Archaeology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Nautilus will undergo EIA with suitable mitigation measures recommended. It is essential to ensure that at the intersection of both Proposed Projects that the depth of the trench(es) and any use of external cable protection are fully	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				assessed for the potential for direct and indirect impact to marine archaeological receptors. This assessment for the Proposed Project has been included in the PEIR based on the design information to date. Relevant shared receptors include: Sub-seabed heritage receptors (known and potential palaeogeography and buried maritime and aviation features). Seabed heritage receptors (known and potential maritime and aviation features). Historic seascape character of the region.	
Shipping Navigation	**Yes**	**Yes**	Potential overlap during construction and operational phases.	The Project will enter into crossing agreements and/or proximity agreements as required with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor such as that already foreseen with Nautilus Offshore Interconnector. Crossings will be undertaken using agreed crossing designs and schedules in accordance with the	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. Ultimately this crossing presents only an incremental increase in potential hazard to fishing gear and anchors which is suitably addressed via risk based burial approach and crossing design. **Not likely to have significant effect.**	
Commercial Fisheries	**Yes**	**Yes**	Potential overlap during construction and operational phases.	Nautilus is expected to undergo EIA with appropriate mitigation recommended. The cable route for Nautilus has not yet been finalised, however, any cable crossing with this Project is expected to be handled with standard industry practice, as exemplified by other crossings in this Project's design. Similar mitigation measures to this Project are expected to be implemented by Nautilus, including	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				a 500 m exclusion zone around the cable installation activities: with timely communication to sea users. As such, the combined implementation of exclusion zones during simultaneous cable lay would increase their overall spatial extent. However, these zones will be transient, moving between 0.5 km and 5 km a day; and small in relation to widespread fishing grounds in the region. Thus, there is expected to be minor potential obstruction, displacement, loss of grounds, and indirect ecological effects for fishers, and negligible potential loss or damage of fishing gear, in relation to the cables. **Not likely to have significant effect.**	
Other Sea Users	**Yes**	**Yes**	Potential overlap during construction and operational phases.	The Project will enter into crossing agreements and/or proximity agreements as required with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor such as that already foreseen with Nautilus Offshore Interconnector. Crossings will be undertaken using agreed crossing designs and	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				schedules in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses, protective on the HVDC cables and/or pre- and post-lay rock placement. Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones. Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project. Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. **Not likely to have significant effect.**	

Table 4.12.11 Matrix Summarising stage 1 and 2 of the Inter-Project CEA - Five Estuaries Offshore Windfarm

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Five Estuaries Offshore Windfarm					
Physical Environment	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous cable burial/installation operations may increase the amount of sediment disturbed and released into the water column. The cable crossing with this Project is expected to conform with standard industry practice, as exemplified by other crossings in this Project's design. The cable crossing with Five Estuaries OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 2, Physical Environment**.	**Yes**
Benthic Ecology	**Yes**	**Yes**	Potential overlap between the construction and operational phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on the benthic habitats. The Proposed Project and Five Estuaries cross at one location, where there is expected to be cable crossing protection required. This will involve either rock	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				placement and/or addition of mattresses. Thus, the key potential effects where the two HVDC will cross are direct habitat loss from placement of cable protection; EMF and thermal effects to habitats and benthic communities and introduction of INNS. The cable crossing with Five Estuaries OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 3, Benthic Ecology**.	
Fish and Shellfish Ecology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on herring and sandeel spawning grounds. The Proposed Project and Five Estuaries cross at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. Thus, the key potential effects where the two	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				HVDC will cross are EMF and thermal effects. The cable crossing with Five Estuaries OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 4, Fish and Shellfish**.	
Marine Mammals	**Yes**	**Yes**	Potential overlap between the construction phases	Simultaneous construction may increase the level of underwater sound disturbance to marine mammals.	**Yes**
Marine Ornithology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver, as well as increasing temporary disturbance to foraging habitats and further decreasing water quality.	**Yes** – Disturbance and displacement of red-throated diver

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from increases suspended sediment are likely to be highly localised over a small spatial overlap where Five Estuaries Offshore Windfarm crosses the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea. In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. For	

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				all other species, **no likely significant effect** is anticipated.	
Marine Archaeology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Five Estuaries OWF will undergo EIA with suitable mitigation measures recommended. It is essential to ensure that at the intersection of both Proposed Projects that the depth of the trench(es) and any use of external cable protection are fully assessed for the potential for direct and indirect impact to marine archaeological receptors. This assessment for the Proposed Project has been included in the PEIR based on the design information to date. Relevant shared receptors include: Sub-seabed heritage receptors (known and potential palaeogeography and buried maritime and aviation features). Seabed heritage receptors (known and potential maritime and aviation features). Historic seascape character of the region.	**Yes**
Shipping Navigation	**Yes**	**No**	Potential overlap during construction	The Project will enter into crossing agreements and/or proximity agreements with the third-party asset	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
			and operational phases.	owners of any subsea infrastructure installed and/or planned along the corridor such as that already foreseen with Five Estuaries OWF. Crossings will be undertaken using agreed crossing designs and schedules in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable crossing with Five Estuaries OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 8: Shipping and Navigation**. Ultimately this crossing presents only an incremental increase in potential hazard to fishing gear and anchors which is suitably addressed via risk based burial approach and crossing design. **Not likely to have significant effect.**	

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Cable installation vessel movement may coincide with vessel activities with the surface features of the windfarm. However, given the short temporal envelope of the construction phase, range of advance promulgations in place informing all sea users of the brief operation and the large existing prevalence of shipping activity, no significant cumulative effects are foreseen. **Not likely to have significant effect.**	
Commercial Fisheries	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Five Estuaries OWF is expected to have undergone EIA with appropriate mitigation recommended. The cable crossing with this Project is expected to be handled with standard industry practice, as exemplified by other crossings in this Project's design, The cable crossing with Five Estuaries OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 9, Commercial Fisheries**.	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Similar mitigation measures to this Project are expected to be implemented by Five Estuaries, including a 500 m exclusion zone around the cable installation activities: with timely communication to sea users. As such, the combined implementation of exclusion zones during simultaneous cable lay would increase their overall spatial extent. However, these zones will be transient, moving between 0.5 km and 5 km a day; and relatively small in comparison with what appear to be widespread fishing grounds in the region. Thus, there is expected to be minor potential obstruction, displacement, loss of grounds, and indirect ecological effects for fishers; and negligible potential loss or damage of fishing gear, in relation to the cables. The proposed location of the OWF arrays is outside of the Study Area for commercial fisheries. Thus, it is unlikely for there to be any additive or synergistic effects between the Proposed Project and any potential	

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				array effects. **Not likely to have significant effect.**	
Other Sea Users	**Yes**	**Yes**	Potential overlap during construction and operational phases.	The Project will enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor such as that already foreseen with Five Estuaries OWF. Crossings will be undertaken using agreed crossing designs and schedules in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses on the HVDC cables and/or pre- and post-lay rock placement. The cable crossing with Five Estuaries OWF is included as part of the project design, with no further crossings anticipated in the future. Therefore, this crossing does not constitute a cumulative effect as it is already considered in **Volume 1, Part 4, Chapter 10, Other Sea Users**	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Marine recreational users could be displaced from the area of spatial overlap, including any recommended working zones. Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still considered to be low as users will be able to use other areas in close proximity to the Proposed Project. Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. **Not likely to have significant effect.**	

Table 4.12.12 Matrix Summarising stage 1 and 2 of the Inter-Project CEA - Lionlink Offshore Interconnector

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Lionlink Offshore Interconnector					
Physical Environment	**Yes**	**Yes**	Potential overlap between the construction and operation phases	While the marine cable pathways of the Proposed Project and Lionlink will not overlap, they may share a landfall location. Simultaneous cable burial/installation operations may increase the amount of sediment disturbed and released into the water column. During the operational lifetime of the projects, cable protection measures at the landfall site could cause modification of the local nearshore wave regime and associated patterns of sediment transport, which in turn may alter coastal morphology by acting as a barrier to sediment transport processes.	**Yes**
Benthic Ecology	**Yes**	**Yes**	Potential overlap between the construction and operational phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on the benthic habitats. The Proposed Project and Lionlink are unlikely to cross due to the direction this cable will be coming from.	**Yes**

Fish and Shellfish Ecology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous cable burial operations may increase the amount of sediment disturbed and deposited on the benthic habitats. The Proposed Project and Lionlink are unlikely to cross due to the direction this cable will be coming from.	**Yes**
Marine Mammals	**Yes**	**Yes**	Potential overlap between the construction phases	Simultaneous construction may increase the level of underwater sound disturbance to marine mammals.	**Yes**
Marine Ornithology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous or protracted cable laying from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver, as well as increasing temporary disturbance to foraging habitats and further decreasing water quality. Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable. Any reduction in water quality from	**Yes –** Disturbance and displacement of red-throated diver

				increases in suspended sediment are likely to be highly localised over a small spatial overlap where the Lionlink is in close proximity to the Proposed Project in comparison to the total amount of foraging habitat for seabirds and waterbirds in the North Sea. In isolation both projects are unlikely to result in significant effects to red-throated diver or other birds. However, unmitigated, there is the potential for construction activities associated with both projects to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced. Lionlink is also expected to undergo EIA with similar suitable mitigation measures incorporated to reduce risk to seabirds.	
Marine Archaeology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Lionlink will undergo EIA with suitable mitigation measures recommended. It is essential to ensure that at the intersection of both Proposed Projects that the depth of the trench(es) and any use of external cable protection are fully assessed for the potential for direct and indirect impact to marine archaeological receptors. This assessment for the Proposed Project has been included in the PEIR based on the design	**Yes**

				information to date. Relevant shared receptors include: Sub-seabed heritage receptors (known and potential palaeogeography and buried maritime and aviation features). Seabed heritage receptors (known and potential maritime and aviation features). Intertidal heritage receptors (known and potential palaeogeography, historic terrestrial, marine and aviation features). Historic seascape character of the region.	
Shipping Navigation	**Yes**	**No**	Potential overlap during construction and operational phases.	The Proposed Project and Lionlink are unlikely to cross due to the direction this cable will be coming from. Cable installation vessel movement may coincide with vessel activities associated with Lionlink. However, given the short temporal envelope of the construction phase, range of advance promulgations in place informing all sea users of the brief operation and the large existing prevalence of shipping activity, no significant cumulative effects are foreseen. **Not likely to have significant effect.**	**No**
Commercial Fisheries	**Yes**	**Yes**	Potential overlap between the	Lionlink is expected to undergo EIA with appropriate mitigation recommended.	**No**

			construction and operation phases	The cable route for Lionlink is not expected to have a crossing point with this Project, due to its angle. Instead, they will likely run parallel approaching landfall in Kent. Similar mitigation measures to this Project are expected to be implemented by Lionlink, including a 500 m exclusion zone around the cable installation activities; with timely communication to sea users. As such, the combined implementation of exclusion zones during simultaneous cable lay would increase their overall spatial extent. However, these zones will be transient, moving between 0.5 km and 5 km a day; and small in relation to widespread fishing grounds in the region. Thus, there is expected to be minor potential obstruction, displacement, loss of grounds, and indirect ecological effects for fishers, and negligible potential loss or damage of fishing gear. **Not likely to have significant effect**.	
Other Sea Users	**Yes**	**Yes**	Potential overlap during construction and operational phases.	The Proposed Project and Lionlink are unlikely to cross due to the direction this cable will be coming from. Whilst there may be a slight increase in potential interruption to recreational activities as a result of both developments occurring cumulatively, the magnitude of impact is still	**No**

			considered to be low as users will be able to use other areas in close proximity to the Proposed Project. Notice(s) will be given to marine recreational users in the area via the use of Notices to Mariners, Kingfisher Bulletins, NAVTEX, and/or broadcast warnings. **Not likely to have significant effect.**

Table 4.12.13 Matrix Summarising stage 1 and 2 of the Inter-Project CEA - Hanson Aggregate Marine Ltd Area 528/2

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
Hanson Aggregate Marine Ltd Area 528/2					
Physical Environment	**Yes**	**Yes**	Potential overlap between the construction and operation phases	The Proposed Project avoids the Hanson Aggregate Marine Ltd Area. However, their close proximity may lead to an increase in the amount of sediment released into the water column over a period of time during construction and burial of the Sea Link cable if mining activities are also simultaneously taking place. **Not likely to have significant effect.**	**Yes**
Benthic Ecology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	The Proposed Project avoids the Hanson Aggregate Marine Ltd Area. However, the close proximity may lead to an increase in the amount of sediment deposition to benthic habitats over a period of time during construction and burial of the Sea Link cable if mining activities are also simultaneously taking place.	**Yes**
Fish and Shellfish Ecology	**Yes**	**Yes**	Potential overlap between the construction	The Proposed project avoids the Hanson Aggregate Marine Ltd Area. However, the close proximity may lead to an increase in the amount of sediment deposition to fish spawning habitats over a period of time during	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
			and operation phases	construction and burial of the Sea Link cable if mining activities are also simultaneously taking place.	
Marine Mammals	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Simultaneous activities could result in increased disturbance to marine mammals. However, sediment dredging underwater sound levels are low level and for an area of already busy shipping activity any cumulative disturbance is unlikely. **No likely significant effect.**	**No**
Marine Ornithology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Disturbance from simultaneous vessels in areas supporting species sensitive to disturbance, in particular red-throated diver, as well as increasing temporary disturbance to foraging habitats and further decreasing water quality. Both projects are located in an area already characterised by high levels of shipping activity and vessels used in both projects will be slow moving and only present in discrete areas for a short amount of time. The cumulative disturbance of seabed habitat and potential temporary loss of foraging opportunities will be small-scale and quickly recoverable.	**Yes**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				Any reduction in water quality from increases suspended sediment are likely to be highly localised.	
Marine Archaeology	**Yes**	**Yes**	Potential overlap between the construction and operation phases	Area 528/2 will undergo EIA with suitable mitigation measures recommended. With regards to seabed heritage receptors (known and potential maritime and aviation features), it would be beneficial to understand the physical processes environment within the dredging area and the indirect impacts caused by dredging beyond the extent of the area. Relevant shared receptors include: Sub-seabed heritage receptors (known and potential palaeogeography and buried maritime and aviation features). Seabed heritage receptors (known and potential maritime and aviation features). Historic seascape character of the region.	**Yes**
Shipping Navigation	**Yes**	**Yes**	Potential overlap during construction	The Proposed Project route avoids aggregates and mining site agreement areas as according to	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
			and operational phases.	detailed burial risk assessment and route selection. The Cable Burial Risk Assessment has identified the proposed aggregates extraction area and recommends monitoring the proposal with key contacts in place. Proximity agreements shall be established as according to industry guidelines, as necessary, to manage proximal activities and any specific related risks. **Not likely to have significant effect.**	
Commercial Fisheries	**Yes**	**Yes**	Potential overlap during construction and operational phases.	The Proposed Project and the Hanson aggregate exploration and extraction areas do not overlap. The Cable Burial Risk Assessment recommends monitoring the Hansen proposal with key contacts in place. Proximity agreements will be established according to industry guidelines, as necessary, to manage proximal activities and any specific related risks. As such there is minimal risk of the cable becoming exposed and presenting additional risk to fishers outside of that assessed in the PEIR.	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				In addition, **Volume 1, Part 4, Chapter 9** for this Project considers there to be no significant obstruction, loss of fishing grounds, displacement, loss or damage to gear, or indirect ecological effects through all phases of this Project. This is primarily due to the small extent of the cable, the localised and mostly transient effects, and widespread fishing grounds in the region. The Hanson Project is expected to undergo EIA with appropriate mitigation recommended. With this in mind, this Project is not considered to be substantially additive to the effects of the Hansen aggregate area, any potential significant effects are highly unlikely to be resultant of the Proposed Project's influence. **Not likely to have significant effect.**	
Other Sea Users	**Yes**	**Yes**	Potential overlap during construction and operational phases.	The Proposed Project route avoids aggregates and mining site agreement areas as according to detailed burial risk assessment and route selection. The Cable Burial Risk Assessment has identified the proposed	**No**

Technical discipline	Within technical discipline specific ZoI?	Progress in stage 2	Overlap in temporal scope?	Scale and nature of development likely to have a significant cumulative effect? Relevant shared receptors and/or pathways?	Progress to stage 3 and 4
				aggregates extraction area and recommends monitoring the proposal with key contacts in place. Proximity agreements shall be established as according to industry guidelines, as necessary, to manage proximal activities and any specific related risks. **Not likely to have significant effect.**	

Stage 3

4.12.2.8 Further information on all these other developments is provided in **Appendix 4.12.A Offshore - Descriptions of other developments** in order to support stage 3. This appendix provides further information on the design, construction, and programme for the other developments.

Stage 4

4.12.2.1 Stage 4 has entailed undertaking a preliminary CEA for the 'short list' of developments where that development has been taken through to stage 4 for a particular topic. The results of this preliminary assessment are reported in matrix format for each topic in Table 4.12.14 to Table 4.12.19. Where topics have not carried though any developments to stage 3 and stage 4, subsequent CEA tables have been removed. Where the effects across projects are the same, columns have been merged together for ease.

4.12.2.2 As this is a preliminary assessment, residual significance levels have not been presented, only whether it is likely to be significant or not.

4.12.2.3 Professional judgement alongside topic specific standards and guidance outlined within each chapter, and the criteria presented in Section 1.5.A.4 **Volume 2, Appendix 1.5.A Cumulative Effects Assessment Methodologies** has been applied in determining whether the combination of effects from two developments could result in a significant effect overall. As a guide and to aid consistency and transparency of how professional judgement has been applied, a 'significance matrix' has been developed, as presented in **Volume 2, Appendix 1.5.A Cumulative Effects Assessment Methodologies**. As noted above, in all cases professional judgement has also been applied to each assessment.

Table 4.12.14 Physical Environment CEA

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
Physical Environment					
Sizewell C Nuclear Power Plant	The water column may experience an increase in suspended sediment concentration and turbidity during construction activities. The impact of suspended sediment being transported onto the Coraline Crags Ridges is likely to be temporary as the finer sediment is likely to be re-suspended under higher current speeds or storm wave activity. However, some small, localized zones that are sheltered from current and wave action may experience permanent change to the sediment composition. The Suffolk landfall is approximately 5 km to the south of the Sizewell sites. Storm surge conditions dominate sediment processes along the Suffolk coast resulting in southerly transport. Any construction or operational effects during these dominant conditions will not therefore affect water circulation patterns or water quality at the location of the offshore intake(s) at Sizewell. Storm conditions from the south are less significant in terms of sediment transport processes and any effects on transport due to cable protection will in any case be highly localised with transport patterns re-established long before reaching Sizewell.		**Not Significant**	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 2, Physical Processes**).	**Not Significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
NeuConnect	The water column may experience an increase in suspended sediment concentration and turbidity during construction activities. The wider area of seafloor morphology and seafloor morphological features (i.e. bedforms) may be altered during the simultaneous installation activities (sandwave lowing and pre-sweeping activities). However, seafloor and bedform recovery is expected via natural sediment transport processes once activities have stopped.		This development has undergone EIA with suitable mitigation measures recommended and therefore any impacts will be negligible. **Not Significant**	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 2, Physical Processes**).	**Not Significant**
Gridlink	The water column may experience an increase in suspended sediment concentration and turbidity during construction activities. The wider area of seafloor morphology and seafloor morphological features (i.e. bedforms) may be altered during the simultaneous installation activities (sandwave lowing and pre-sweeping activities). However, seafloor and bedform recovery is expected via natural sediment transport processes once activities have stopped.		This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible. **Not Significant**	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 2, Physical Processes**).	**Not Significant**
North Falls Offshore Windfarm	The water column may experience an increase in suspended sediment concentration and turbidity during construction activities. The wider area of seafloor morphology and seafloor morphological features (i.e. bedforms) may be altered during the simultaneous installation activities (sandwave lowing and pre-		This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible. **Not Significant**	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part**	**Not Significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
	sweeping activities). However, seafloor and bedform recovery is expected via natural sediment transport processes once activities have stopped.			**4, Chapter 2, Physical Processes**).	
East Anglia ONE North Offshore Windfarm East Anglia TWO Offshore Windfarm East Anglia THREE Offshore Windfarm	Projects are in close proximity to the Coraline Crag Ridges. The cumulative impact of the projects on this geological feature may be to change the surficial sediment composition of the Ridges as the combined amount of sediment suspended during cable burial operations are transported deposited onto the ridges. The impact is likely to be temporary as the finer sediment is likely to be re-suspended under higher current speeds or storm wave activity. However, some small, localized zones that are sheltered from current and wave action may experience permanent change to the sediment composition. A commitment has been made for East Anglia ONE to install the export cable using HDD techniques to minimise disturbance south of the Coraline Crag ridges and at landfall. Based on this commitment, the impact on the Coraline Crag sedimentary composition is unlikely to be significant.		**Not Significant**	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 2, Physical Processes**).	**Not significant**
Nautilus Offshore Interconnector	Nautilus is expected to undergo an EIA with appropriate mitigation recommended. The cable route for Nautilus has not yet been finalised. The Nautilus potential routing options at the Suffolk landfall currently overlap with the		**Not Significant**	Embedded Mitigation and Control and Management Measures as recommended in the	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
	Proposed Project. Whilst the landfall could be shared at this landfall, the marine cables are unlikely to cross. Should the Nautilus landfall move to Kent, there will be a crossing in marine waters. The cable crossing with the Proposed Project is expected to be handled with standard industry practice, as exemplified by other crossings in this Project's design. Therefore, any effects from this, including the addition of cable protection, is not considered cumulative. The water column may experience an increase in suspended sediment concentration and turbidity if installation activities overlap.			PEIR (**Volume 1, Part 4, Chapter 2, Physical Processes**).	
Five Estuaries Offshore Windfarm	Simultaneous cable burial/installation operations may increase the amount of sediment disturbed and released into the water column. The cable crossing with the Proposed Project is expected to be handled with standard industry practice, as exemplified by other crossings in this Project's design. Therefore, any effects from this, including the addition of cable protection, is not considered cumulative.	**Not Significant**		Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 2, Physical Processes**).	**Not significant**
Lionlink Offshore Interconnector	While the marine cable pathways of the Proposed Project and Lionlink will not overlap, they may share a landfall location. Simultaneous cable burial/ installation operations may increase the amount of sediment disturbed and released into the water column.	**Not Significant**		Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part**	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
	During the operational lifetime of the projects, cable protection measures at the landfall site could cause modification of the local nearshore wave regime and associated patterns of sediment transport, which in turn may alter coastal morphology by acting as a barrier to sediment transport processes. Any change to the coastline as a result of the presence of nearshore cable protection is considered to be not significant as any morphological change will be temporary, low magnitude and highly localised as both landfall sites will be the same.			**4, Chapter 2, Physical Processes**).	
Hanson Aggregate Marine Ltd Area 528/2	The Proposed Project avoids the Hanson Aggregate Marine Ltd Area. However, their close proximity may lead to an increase in the amount of sediment released into the water column over a period of time during construction and burial of the Sea Link cable if mining activities are also simultaneously taking place. Proximity agreements will be established as according to industry guidelines, as necessary, to manage proximal activities and any specific related risks. Not likely to have significant effect.		**Not Significant**	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 2, Physical Processes**).	**Not significant**

Table 4.12.15 Benthic Ecology CEA

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
Benthic Ecology					
NeuConnect	The key impact pathways, which are expected to be the same for all considered projects are: Direct habitat loss from placement of cable protection Temporary habitat disturbance from increased suspended sediment and sediment deposition, cable installation activities EMF and thermal effects to habitats and benthic communities. Introduction of INNS to the marine environment.		**Not significant** The Proposed Project crosses the Neuconnect HVDC cable route at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. The crossing of cables has been accounted for in this Project's design and addressed as part of the PEIR.	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 3, Benthic Ecology**).	**Not significant**
GridLink Interconnector			**Not significant** The Proposed Project crosses the Gridlink cable route at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. The crossing of cables has been accounted for in this Project's design and addressed as part of the PEIR.	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 3, Benthic Ecology**).	**Not significant**
North Falls Offshore Windfarm			**Not significant**	Embedded Mitigation and Control and	**Not significant**

		The Proposed Project and the North Falls proposed corridor cross at one location, and run almost parallel for a distance of approximately 12 km where the separation between the two corridors varies between 1.0 and ~2.8 km. With the exception of sediment disturbance resulting in seabed deposition all other impact pathways have effects only in very close proximity to the cable and thus there is no potential for interactions and hence no cumulative effects. There is the potential for some overlap in sediment deposition, but the area of effect is very limited and mostly at a distance where dilutionary processes result in only minimal sediment deposition. Fine sediments deposited are also likely to winnow away over time such that any observable cumulative effects are extremely unlikely.	Management Measures as recommended in the PEIR (**Volume 1**, **Part 4, Chapter 3, Benthic Ecology**).	
East Anglia ONE North Offshore Windfarm East Anglia TWO Offshore Windfarm		**Not significant** The subsea cable corridor for East Anglia ONE OWF, which is the same as that for East Anglia TWO OWF, is approximately 0.4 km from the Proposed Project near the Suffolk landfall. The two corridors are within 1.5 km of each for a distance of approximately 3.5 km. There is the potential for some overlap in sediment deposition, but the area is very limited and mostly at a distance	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 3, Benthic Ecology**).	**Not significant**

		where dilutionary processes result in only minimal sediment deposition. Fine sediments deposited are also likely to winnow away over time such that any observable cumulative effects are extremely unlikely. All other pathways are within a few metres of the activity and so there is no potential for overlap in effects.		
East Anglia THREE Offshore Windfarm		**Not significant** The Proposed Project crosses the East Anglia THREE export cable corridor at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. The crossing of cables has been accounted for in this Project's design and addressed as part of the PEIR.	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 3, Benthic Ecology**).	**Not significant**
Nautilus Offshore Interconnector		**Not significant** The location of the Nautilus cable corridor is not available, but it is reported that landfall will be on the Suffolk coast. There is, therefore, potential for a crossing with the Proposed Project and some small areas where the corridors will be in close proximity though this likely to be for a short distance only as the corridors are in different directions. Any cumulative effects will be local and small in scale so not considered to be significant.	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 3, Benthic Ecology**).	**Not significant**

Five Estuaries Offshore Windfarm		The Proposed Project crosses the Five Estuaries export cable corridor at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. The crossing of cables has been accounted for in this Project's design and addressed as part of the PEIR.	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 3, Benthic Ecology**).	**Not significant**
Lionlink Offshore Interconnector		**Not significant** The location of the Lionlink cable corridor was not available at the time of writing, but it is reported that landfall will be on the Suffolk coast. There is, therefore, potential for a crossing with the Proposed Project and some small areas where the corridors will be in close proximity though this likely to be for a short distance only as the corridors are in different directions. Any cumulative effects will be local and small in scale on not considered to be significant.	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 3, Benthic Ecology**).	**Not significant**
Hanson Aggregate Marine Ltd Area 528/2	The key impact pathway that has the potential to result in cumulative effects is sediment disturbance resulting in deposition to the seabed.	**Not significant** The Proposed Project runs parallel to the licence area for a distance of approximately 15 km and is in very close proximity (~90 m) for around 10 km. There is therefore potential for overlap in sediment deposition in particular. However, the likely requirement for proximity agreements	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 3,**	**Not significant**

		for operations limits the potential for simultaneous operations. In addition, the seabed in this area is comprised of largely coarse type sediments, which will settle rapidly, such that any dispersion is likely to be very limited.	**Benthic Ecology**).

Table 4.12.16 Fish and Shellfish CEA

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
Fish and Shellfish					
NeuConnect	The key impact pathways are the direct loss of habitat or the temporary disturbance to spawning areas from sediment deposition leading to mortality of eggs on the seabed		**Not significant** The Proposed Project crosses the Neuconnect HVDC cable route at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. The crossing of cables has been accounted for in this Project's design and addressed as part of the PEIR.	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 4, Fish and Shellfish**).	**Not significant**
GridLink Interconnector			**Not significant** The Proposed Project crosses the Gridlink cable route at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. The crossing of cables has been accounted for in this Project's design and addressed as part of the PEIR.	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 4, Fish and Shellfish**).	**Not significant**
North Falls Offshore Windfarm			**Not significant**	Embedded Mitigation and	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
			The Proposed Project and the North Falls proposed corridor cross at one location, and run almost parallel for a distance of approximately 12 km where the separation between the two corridors varies between 1.0 and ~2.8 km. With the exception of sediment disturbance resulting in seabed deposition all other impact pathways have effects only in very close proximity to the cable and thus there is no potential for interactions and hence no cumulative effects. There is the potential for some overlap in sediment deposition, but the area of effect is very limited and mostly at a distance where dilutionary processes result in only minimal sediment deposition. Fine sediments deposited are also likely to winnow away over time such that any observable cumulative effects are extremely unlikely.	Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 4, Fish and Shellfish**).	
East Anglia ONE North Offshore Windfarm			**Not significant** The subsea cable corridor for EA1, which is the same as that for EA2, is	Embedded Mitigation and Control and	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
East Anglia TWO Offshore Windfarm			approximately 0.4 km from the Proposed Project near the Suffolk landfall. The two corridors are within 1.5 km of each for a distance of approximately 3.5 km. There is the potential for some overlap in sediment deposition, but the area is very limited and mostly at a distance where dilutionary processes result in only minimal sediment deposition. Fine sediments deposited are also likely to winnow away over time such that any observable cumulative effects are extremely unlikely. All other pathways are within a few metres of the activity and so there is no potential for overlap in effects.	Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 4, Fish and Shellfish**).	
East Anglia THREE Offshore Windfarm			**Not significant** The Proposed Project crosses the East Anglia THREE export cable corridor at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. The crossing of cables has been accounted for in this Project's design and addressed as part of the PEIR.	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 4, Fish and Shellfish**).	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
Nautilus Offshore Interconnector			**Not significant** The location of the Nautilus cable corridor is not available, but it is reported that landfall will be on the Suffolk coast. There is, therefore, potential for a crossing with the Proposed Project and some small areas where the corridors will be in close proximity though this likely to be for a short distance only as the corridors are in different directions. Any cumulative effects will be local and small in scale on not considered to be significant.	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 4, Fish and Shellfish**).	**Not significant**
Five Estuaries Offshore Windfarm			The Proposed Project crosses the Five Estuaries export cable corridor at one location, where there is expected to be cable crossing protection required. This will involve either rock placement and/or addition of mattresses. The crossing of cables has been accounted for in this Project's design and addressed as part of the PEIR.	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 4, Fish and Shellfish**).	**Not significant**
Lionlink Offshore Interconnector			**Not significant**	Embedded Mitigation and	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
			The location of the Lionlink cable corridor was not available at the time of writing, but it is reported that landfall will be on the Suffolk coast. There is, therefore, potential for a crossing with the Proposed Project and some small areas where the corridors will be in close proximity though this likely to be for a short distance only as the corridors are in different directions. Any cumulative effects will be local and small in scale on not considered to be significant.	Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 4, Fish and Shellfish**).	
Hanson Aggregate Marine Ltd Area 528/2			**Not significant** The Proposed Project runs parallel to the licence area for a distance of approximately 15 km and is in very close proximity (~90 m) for around 10 km. There is therefore potential for overlap in sediment deposition in particular. However, the likely requirement for proximity agreements for operations limits the potential for simultaneous operations. In addition, the seabed in this area is comprised of largely coarse type sediments, which will settle rapidly, such that any dispersion is likely to be very limited.	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 4, Fish and Shellfish**).	**Not significant**

Table 4.12.17 Marine Mammals CEA

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
Marine Mammals					
Sizewell C Nuclear Power Plant NeuConnect GridLink Interconnector North Falls Offshore Windfarm East Anglia ONE North Offshore Windfarm East Anglia TWO Offshore Windfarm East Anglia THREE Offshore Windfarm Nautilus Offshore Interconnector Five Estuaries Offshore Windfarm	Disturbance to marine mammals, particularly harbour porpoise, from activities generating underwater sound including geophysical surveys and construction activities. Clearance of UXO, which can generate significant underwater sound levels, will be subject to a separate marine licence application when the number and location of detonations have been identified. Therefore, effects from UXO clearance are not considered in this assessment.		**Not significant** The maximum ZOI for disturbance from underwater sound (UWS) produced during construction or maintenance during the operational phase, is 5 km. This is the effective deterrent range (EDR) for the highest intensity sound source, a sub-bottom profiler (SBP), in respect of the most sensitive marine mammal, the harbour porpoise. However, should SBP activities for both projects occur at the same time the duration where an overlap could occur would be very short so any disturbance will be limited. Also, considering the standard mitigation measures required for activities involving underwater sound. disturbance will be low level avoidance rather than panic or flight responses. It is also likely that Proximity agreements will be established according to industry guidelines, as necessary, to manage proximal	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 5. Marine Mammals**).	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
Lionlink Offshore Interconnector			activities and any specific related risks.		

Table 4.12.18 Marine Ornithology CEA

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
Ornithology					
NeuConnect	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning.	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning.	May result in a **likely significant effect**	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 6, Ornithology).** Additional mitigation includes: With the exception of trenchless installation techniques at landfall, construction works will be timed to ensure the overwintering period of the red-throated diver is avoided, in the months of January – March.	**Not significant**
GridLink Interconnector	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable	May result in a **likely significant effect**	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 6, Ornithology).** Additional mitigation includes:	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
	installation, maintenance and decommissioning.	installation, maintenance and decommissioning.		With the exception of trenchless installation techniques at landfall, construction works will be timed to ensure the overwintering period of the red-throated diver is avoided, in the months of January – March.	
North Falls Offshore Windfarm	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning.	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning. Wind turbine operation causing displacement and collisions to ornithological receptors.	May result in a **likely significant effect**	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 6, Ornithology).** Additional mitigation includes: With the exception of trenchless installation techniques at landfall, construction works will be timed to ensure the overwintering period of the red-throated diver is avoided, in the months of January – March.	**Not significant**
East Anglia ONE North	Increase in the number of project-related vessels (and thus sound and	Increase in the number of project-related vessels (and thus sound and	May result in a **likely significant effect**	Embedded Mitigation and Control and Management Measures as	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
Offshore Windfarm	visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning.	visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning. Wind turbine operation causing displacement and collisions to ornithological receptors.		recommended in the PEIR (**Volume 1, Part 4, Chapter 6, Ornithology).** Additional mitigation includes: With the exception of trenchless installation techniques at landfall, construction works will be timed to ensure the overwintering period of the red-throated diver is avoided, in the months of January – March.	
East Anglia TWO Offshore Windfarm	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning.	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning. Wind turbine operation causing displacement and collisions to ornithological receptors.	May result in a **likely significant effect**	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 6, Ornithology).** Additional mitigation includes: With the exception of trenchless installation techniques at landfall, construction works will be timed to ensure the overwintering period of the red-throated diver is	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
				avoided, in the months of January – March.	
East Anglia THREE Offshore Windfarm	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning.	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning. Wind turbine operation causing displacement and collisions to ornithological receptors.	May result in a **likely significant effect**	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 6, Ornithology).** Additional mitigation includes: With the exception of trenchless installation techniques at landfall, construction works will be timed to ensure the overwintering period of the red-throated diver is avoided, in the months of January – March.	**Not significant**
Nautilus Offshore Interconnector	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning.	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning.	**Not significant**	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 6, Ornithology).** Additional mitigation includes: With the exception of trenchless installation	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
				techniques at landfall, construction works will be timed to ensure the overwintering period of the red-throated diver is avoided, in the months of January – March.	
Five Estuaries Offshore Windfarm	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning.	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning. Wind turbine operation causing displacement and collisions to ornithological receptors.	May result in a **likely significant effect**	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 6, Ornithology).** Additional mitigation includes: With the exception of trenchless installation techniques at landfall, construction works will be timed to ensure the overwintering period of the red-throated diver is avoided, in the months of January – March.	**Not significant**
Lionlink Offshore Interconnector	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species	**Not significant**	Embedded Mitigation and Control and Management Measures as recommended in the	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
	sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning.	sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning.		PEIR (**Volume 1, Part 4, Chapter 6, Ornithology).** Additional mitigation includes: With the exception of trenchless installation techniques at landfall, construction works will be timed to ensure the overwintering period of the red-throated diver is avoided, in the months of January – March.	
Hanson Aggregate Marine Ltd Area 528/2	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver from cable installation, maintenance and decommissioning.	Increase in the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver.	**Not significant**	Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 6, Ornithology).** Additional mitigation includes: With the exception of trenchless installation techniques at landfall, construction works will be timed to ensure the overwintering period of the red-throated diver is	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
				avoided, in the months of January – March.	

Table 4.12.19 Marine Archaeology CEA

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
Marine Archaeology					
NeuConnect	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development has undergone EIA with suitable mitigation measures recommended and	**Not significant**	Mitigation as recommended in the PEIR (**Volume 1, Part 4, Chapter 7, Marine Archaeology**) – no additional mitigation is proposed.	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
		therefore any impacts will be negligible.			
GridLink Interconnector	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development has undergone EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	**Not significant**	Mitigation as recommended in the PEIR (**Volume 1, Part 4, Chapter 7, Marine Archaeology**) – no additional mitigation is proposed.	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
North Falls Offshore Windfarm	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	**Not significant**	Mitigation as recommended in the PEIR (**Volume 1, Part 4, Chapter 7, Marine Archaeology**) – no additional mitigation is proposed.	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
East Anglia ONE North Offshore Windfarm	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development has undergone EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	**Not significant**	Mitigation as recommended in the PEIR (**Volume 1, Part 4, Chapter 7, Marine Archaeology**) – no additional mitigation is proposed.	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
East Anglia TWO Offshore Windfarm	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development has undergone EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	**Not significant**	Mitigation as recommended in the PEIR (**Volume 1, Part 4, Chapter 7, Marine Archaeology**) – no additional mitigation is proposed.	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
East Anglia THREE Offshore Windfarm	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development has undergone EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	**Not significant**	Mitigation as recommended in the PEIR (**Volume 1, Part 4, Chapter 7, Marine Archaeology**) – no additional mitigation is proposed.	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
Nautilus Offshore Interconnector	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	**Not significant**	Mitigation as recommended in the PEIR (**Volume 1, Part 4, Chapter 7, Marine Archaeology**) – no additional mitigation is proposed.	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
Five Estuaries Offshore Windfarm	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	**Not significant**	Mitigation as recommended in the PEIR (**Volume 1, Part 4, Chapter 7, Marine Archaeology**) – no additional mitigation is proposed.	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
Lionlink	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	**Not significant**	Mitigation as recommended in the PEIR (**Volume 1, Part 4, Chapter 7, Marine Archaeology**) – no additional mitigation is proposed.	**Not significant**

Project	Effects on shared receptors from the Project	Effects on shared receptors from the 'other developments'	Assessment of cumulative effect with Project	Proposed mitigation applicable to the Project including any apportionment	Residual cumulative effect?
Hanson Aggregate Marine Ltd Area 528/2	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes. This development will undergo EIA with suitable mitigation measures recommended and therefore any impacts will be negligible.	Marine archaeological receptors include: known and potential palaeogeographic features; maritime and aviation sites and finds; intertidal features relating to coastal/marine activity; and historic seascape character. Physical disturbance activities causing direct damage and/or loss to marine archaeological receptors. Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes.	**Not significant**	Mitigation as recommended in the PEIR (**Volume 1, Part 4, Chapter 7, Marine Archaeology**) – no additional mitigation is proposed.	**Not significant**

4.12.3 Preliminary Assessment of Total Cumulative Effects

4.12.3.1 The stage 4 assessment above provides a preliminary cumulative assessment for each topic with each of the other individual developments taken through to stage 3 and 4 as per Advice Note Seventeen (Ref 12.1). Due to the large number of other developments assessed a further preliminary assessment has been undertaken which considers an overall cumulative effect with the Proposed Project with all other developments together on shared receptors. This overall assessment per topic is provided in the tables below.

Physical Environment

Table 4.12.20 Physical Environment Assessment of Total Cumulative Effects

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
Coraline Crags Ridges	Sizewell C Nuclear Power Plant East Anglia ONE North Offshore Windfarm East Anglia TWO Offshore Windfarm East Anglia THREE Offshore Windfarm	The impact of suspended sediment being transported onto the Coraline Crags Ridges is likely to be temporary as the finer sediment is likely to be re-suspended under higher current speeds or storm wave activity. Sheltered localized areas may permanently change sediment composition. A commitment has been made for East Anglia ONE to install the export cable using HDD techniques to minimise disturbance south of the Coraline Crag ridges and at landfall.	**Not significant**
Water circulation patterns or water quality	Sizewell C Nuclear Power Plant	Any construction or operational effects will not affect water circulation patterns or	**Not significant**

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
at the offshore intake(s) at Sizewell.		water quality at the offshore intake(s) at Sizewell as the dominant sediment transport processes along the Suffolk coast are to the south and Sizewell sits to the north. Storm conditions and sediment transport from the south is less significant, so effects due to cable protection will be highly localised with transport patterns re-established long before reaching Sizewell.	
Seafloor morphology and seafloor morphological features	NeuConnect Gridlink North Falls Offshore Windfarm Nautilus Offshore Interconnector East Anglia ONE North Offshore Windfarm East Anglia TWO Offshore Windfarm East Anglia THREE Offshore Windfarm Five Estuaries Offshore Windfarm Lionlink Offshore Interconnector Sizewell C Nuclear Power Plant	The wider area of seafloor morphology and seafloor morphological features (i.e. bedforms) may be altered during the simultaneous installation activities (sandwave lowing and pre-sweeping activities). However, seafloor and bedform recovery is expected via natural sediment transport processes once activities have stopped. The developments have undergone EIAs with suitable mitigation measures recommended and	**Not significant**

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
	Hanson Aggregate Marine Ltd Area 528/2	therefore any impacts will be negligible.	
Coastal morphology	Lionlink Offshore Interconnector	During the operational lifetime of the projects, cable protection measures at landfall could cause modification of the local nearshore wave regime and associated patterns of sediment transport, which in turn may alter coastal morphology by acting as a barrier to sediment transport processes. Any morphological change will be temporary, low magnitude and highly localised at both landfalls. Cable protection at the landfalls will be constructed so they are sufficiently low with shallow side slopes to minimise the likelihood of turbulent conditions resulting from the interaction between currents and waves and the resulting effect on sediment transport. Therefore, any impacts will be negligible.	**Not significant**
Water column	NeuConnect	The potential interactions with the Proposed Project and NeuConnect is	**Not significant**

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
		expected to have minimal cumulative impacts as any sediment fine enough to remain suspended will be dispersed and diluted through the water column and carried away in suspension. It is assumed that NeuConnect will apply suitable mitigation measures recommended and therefore any impacts will be negligible.	

4.12.3.2 The main considerations associated with the cumulative effects of the other developments are:

- the potential change to the Coraline Crags Ridges surficial sedimentary makeup, as suspended sediment is deposited onto the Ridges;
- changes to the water circulation patterns or water quality at the offshore intakes at Sizewell;
- disturbance to the seafloor morphology and destruction of seafloor morphological features (i.e. bedforms);
- changes to coastal morphology as a result of changes to nearshore sediment transport and hydrodynamic patterns; and
- an increase in water column turbidity/suspended sediment concentration.

4.12.3.3 The impact assessment has determined that these potential impacts caused by the cumulative impact of the Proposed Project and nearby projects are likely to be highly localised and short-term. For each potential impact, the preliminary assessment is considered to be Not Significant. Each project is expected to implement similar mitigation to the Offshore Scheme in order to avoid or reduce impacts to the physical environment and physical processes. The overall preliminary assessment of cumulative effects concluded **no significant** effects are likely between the Proposed Project and other developments.

Benthic Ecology

Table 4.12.21 Benthic Ecology Assessment of Total Cumulative Effects

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
Benthic ecology	NeuConnect Interconnector	Crossings are included as part of the project design and do not constitute cumulative effects.	**Not significant**
	GridLink Interconnector		
	North Falls Offshore Windfarm	There is the potential for some overlap in sediment deposition, but the area of effect is very limited and mostly at a distance where dilutionary processes result in only minimal sediment deposition.	
	East Anglia ONE North Offshore Windfarm		
	East Anglia TWO Offshore Windfarm		
	East Anglia THREE Offshore Windfarm	Crossings are included as part of the project design and do not constitute cumulative effects.	
	Nautilus Offshore Interconnector	Any cumulative effects will be local and small in scale on not considered to be significant.	
	Five Estuaries Offshore Windfarm	Crossings are included as part of the project design and do not constitute cumulative effects.	
	Lionlink Offshore Interconnector	This development will undergo EIA with suitable mitigation measures recommended. Any cumulative effects will be local and small in scale	

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
		and not considered to be significant.	
	Hanson Aggregate Marine Ltd Area 528/2	Likely requirement for proximity agreements for operations limits the potential for simultaneous operations. In addition, the seabed in this area is comprised of largely coarse type sediments, which will settle rapidly, such that any dispersion is likely to be very limited.	

4.12.3.4 Due to other projects overlapping or being in close proximity to the Proposed Project, there is potential for direct and indirect cumulative impacts on benthic receptors. Where appropriate, the short-listed projects will undergo full EIA recommending suitable mitigation measures to remove or reduce impact on benthic receptors.

4.12.3.5 The impact assessment has determined that effects caused by the cumulative impact the Proposed Project and nearby projects are likely to be highly localised and short-term. For each potential impact, the preliminary assessment is considered to be not Significant. Each project is expected to implement similar mitigation to the Proposed Project in order to avoid or reduce impacts to benthic receptors. The overall preliminary assessment of cumulative effects concluded **no significant effects** are likely between the Proposed Project and other developments.

Table 4.12.22 Fish and Shellfish Assessment of Total Cumulative Effects

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
Fish and shellfish ecology	NeuConnect Interconnector	Crossings are included as part of the project design and do not constitute cumulative effects.	**Not significant**
	GridLink Interconnector		
	North Falls Offshore Windfarm	There is the potential for some overlap in sediment deposition, but the area of effect is very limited and mostly at a distance where dilutionary processes result in only minimal sediment deposition.	
	East Anglia ONE North Offshore Windfarm		
	East Anglia TWO Offshore Windfarm		
	East Anglia THREE Offshore Windfarm	Crossings are included as part of the project design and do not constitute cumulative effects.	
	Nautilus Offshore Interconnector	This development will undergo EIA with suitable mitigation measures recommended. Any cumulative effects will be local and small in scale on not considered to be significant.	
	Five Estuaries Offshore Windfarm	Crossings are included as part of the project design and do not constitute cumulative effects.	
	Lionlink Offshore Interconnector	Any cumulative effects will be local and small in scale on	

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
		not considered to be significant.	
	Hanson Aggregate Marine Ltd Area 528/2	Likely requirement for proximity agreements for operations limits the potential for simultaneous operations. In addition, the seabed in this area is comprised of largely coarse type sediments, which will settle rapidly, such that any dispersion is likely to be very limited.	

4.12.3.6 Due to other projects overlapping or being in close proximity to the Proposed Project, there is potential for direct and indirect cumulative impacts on fish and shellfish receptors. Where appropriate, the short-listed projects will undergo full EIA recommending suitable mitigation measures to remove or reduce impact on fish and shellfish receptors.

4.12.3.7 The impact assessment has determined that effects caused by the cumulative impact the Proposed Project and nearby projects are likely to be highly localised and short-term. For each potential impact, the preliminary assessment is considered to be not Significant. Each project is expected to implement similar mitigation to the Proposed Project in order to avoid or reduce impacts to fish and shellfish receptors. The overall preliminary assessment of cumulative effects concluded **no significant effects** are likely between the Proposed Project and other developments.

Marine Mammals

Table 4.12.23 Marine Mammal Assessment of Total Cumulative Effects

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
Marine Mammals	Sizewell C Nuclear Power Station NeuConnect Interconnector GridLink Interconnector North Falls Offshore Windfarm East Anglia ONE North Offshore Windfarm East Anglia TWO Offshore Windfarm East Anglia THREE Offshore Windfarm Nautilus Offshore Interconnector Five Estuaries Offshore Windfarm Lionlink Offshore Interconnector	Should sub bottom profiler (SBP) activities for these projects occur at the same time, the duration where an overlap could occur would be very short so any disturbance will be limited. Considering the standard mitigation measures required for activities involving underwater sound disturbance will be low level avoidance rather than panic or flight responses. It is also likely that Proximity agreements will be established according to industry guidelines, as necessary, to manage proximal activities and any specific related risks.	**Not Significant**

4.12.3.8 Due to other projects overlapping or being in close proximity to the Proposed Project, there is potential for indirect cumulative impacts on marine mammal receptors. Where appropriate, the short-listed projects will undergo full EIA recommending suitable mitigation measures to remove or reduce impact on marine mammal receptors.

4.12.3.9 The impact assessment has determined that effects caused by the cumulative impact the Proposed Project and nearby projects are likely to be short-term. For each potential impact, the preliminary assessment is considered to be not Significant. Each project subject to EIA is expected to implement similar mitigation to the Proposed Project in order to avoid or reduce impacts to marine mammal receptors. The overall preliminary

assessment of cumulative effects concluded **no significant effects** are likely between the Proposed Project and other developments.

Marine Ornithology

Table 4.12.24 Marine Ornithology Assessment of Total Cumulative Effects

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
Red-Throated Diver	Sizewell C Nuclear Power Station	Sizewell C Offshore Works are considered to be located at a suitable distance away (approx. 5 km) from the Proposed Project for significant cumulative effects.	**Not significant** Embedded Mitigation and Control and Management Measures as recommended in the PEIR (**Volume 1, Part 4, Chapter 6 Ornithology).** Additional mitigation includes: With the exception of trenchless installation techniques at landfall, construction works will be timed to ensure the overwintering period of the red-throated diver is avoided, in the months of January – March.
	NeuConnect Interconnector	These developments will undergo (or have undergone) EIA with suitable mitigation measures recommended. Increase in the number of project-related vessels (and thus sound and visual disturbance). Presence of offshore windfarm infrastructure leading to displacement. Unmitigated, there is the potential for construction activities associated with these projects to cause a significant effect.	
	GridLink Interconnector		
	North Falls Offshore Windfarm		
	East Anglia ONE North Offshore Windfarm		
	East Anglia TWO Offshore Windfarm		
	East Anglia THREE Offshore Windfarm		
	Five Estuaries Offshore Windfarm		
	Nautilus Offshore Interconnector	These projects are also expected to undergo EIA with	

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
	Lionlink Offshore Interconnector	similar suitable mitigation measures incorporated to reduce risk to seabirds. Therefore, any cumulative effects are expected likely to be not significant.	
	Hanson Aggregate Marine Ltd Area 528/2	Impacts from both projects are expected to be only present in discrete areas for a short term and highly localised.	**Not significant**
Other species	Sizewell C Nuclear Power Station	These developments will undergo (or have undergone) EIA with suitable mitigation measures recommended and therefore any impacts will be negligible. As a result, the overall inter-projects cumulative effect will be **not significant**.	**Not significant**
	NeuConnect Interconnector		
	GridLink Interconnector		
	North Falls Offshore Windfarm		
	East Anglia ONE North Offshore Windfarm		
	East Anglia TWO Offshore Windfarm		
	East Anglia THREE Offshore Windfarm		
	Nautilus Offshore Interconnector		
	Five Estuaries Offshore Windfarm		
	Lionlink Offshore Interconnector		
	Hanson Aggregate Marine Ltd Area 528/2		

4.12.3.10 Where appropriate, the short-listed projects will undergo full EIA recommending suitable mitigation measures to remove or reduce impact on ornithological receptors.

4.12.3.11 Due to other projects overlapping or being in close proximity to the Proposed Project, there is potential for direct and indirect cumulative impacts on ornithological receptors.

4.12.3.12 Simultaneous activities from multiple projects could increase the number of project-related vessels (and thus sound and visual disturbance) in areas supporting species sensitive to disturbance, in particular red-throated diver, as well as increasing temporary disturbance to foraging habitats and further decreasing water quality.

4.12.3.13 Unmitigated, there is the potential for activities associated with other developments to act cumulatively in generating a level of sustained or protracted disturbance, that could sequentially disturb or increase the frequency with which red-throated diver are displaced and result in a significant adverse effect.

4.12.3.14 Additional to the Embedded Mitigation and Control and Management Measures, mitigation for the Proposed Project includes the following: With the exception of the trenchless installation techniques at landfalls, construction works will be timed to ensure the overwintering period of the red-throated diver is avoided, in the months of January – March.

4.12.3.15 Following the application of this seasonal restriction to construction activities, the overall preliminary assessment of cumulative effects concluded **no significant effects** are likely between the Proposed Project and other developments.

Marine Archaeology

Table 4.12.25 Marine Archaeology Assessment of Total Cumulative Effects

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
Known and potential palaeogeographic features	Neuconnect	These developments will undergo (or have undergone) EIA with suitable mitigation measures recommended and therefore any impacts will be negligible. As a result, the overall inter-projects cumulative	**Not significant**
	GridLink Interconnector		
	North Falls Offshore Windfarm		
	East Anglia ONE North Offshore Windfarm		
	East Anglia TWO Offshore Windfarm		
	East Anglia THREE Offshore Windfarm		

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
	Nautilus Offshore Interconnector	effect will be **not significant**.	
	Five Estuaries Offshore Windfarm		
	Lionlink		
	Hanson Aggregate Marine Ltd Area 528/2		
Maritime and aviation sites and finds	Neuconnect	These developments will undergo (or have undergone) EIA with suitable mitigation measures recommended and therefore any impacts will be negligible. As a result, the overall inter-projects cumulative effect will be **not significant**.	**Not significant**
	GridLink Interconnector		
	North Falls Offshore Windfarm		
	East Anglia ONE North Offshore Windfarm		
	East Anglia TWO Offshore Windfarm		
	East Anglia THREE Offshore Windfarm		
	Nautilus Offshore Interconnector		
	Five Estuaries Offshore Windfarm		
	Lionlink		
	Hanson Aggregate Marine Ltd Area 528/2		
Intertidal features relating to coastal/marine activity	Neuconnect	These developments will undergo (or have undergone) EIA with suitable mitigation measures recommended and therefore any	**Not significant**
	GridLink Interconnector		
	North Falls Offshore Windfarm		
	East Anglia ONE North Offshore Windfarm		

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
	East Anglia TWO Offshore Windfarm	impacts will be negligible. As a result, the overall inter-projects cumulative effect will be **not significant**.	
	East Anglia THREE Offshore Windfarm		
	Nautilus Offshore Interconnector		
	Lionlink		
	Five Estuaries Offshore Windfarm		
Historic seascape character	Neuconnect	These developments will undergo (or have undergone) EIA with suitable mitigation measures recommended and therefore any impacts will be negligible. As a result, the overall inter-projects cumulative effect will be **not significant**.	**Not significant**
	GridLink Interconnector		
	North Falls Offshore Windfarm		
	East Anglia ONE North Offshore Windfarm		
	East Anglia TWO Offshore Windfarm		
	East Anglia THREE Offshore Windfarm		
	Nautilus Offshore Interconnector		
	Lionlink		
	Five Estuaries Offshore Windfarm		
	Hanson Aggregate Marine Ltd Area 528/2		

4.12.3.16 Where appropriate, the short-listed projects will undergo full EIA recommending suitable mitigation measures to remove or reduce impact on marine archaeological receptors.

4.12.3.17 Due to other projects overlapping or being in close proximity to the Proposed Project, there is potential for direct and indirect cumulative impacts on marine archaeological receptors. For projects that overlap, understanding the construction techniques required for installing both project's cables and ensuring these take into account sub-

seabed and seabed receptors (known or otherwise) is essential. This assessment for the Proposed Project has been included in the PEIR based on the design information to date.

4.12.3.18 The overall preliminary assessment of cumulative effects concluded **no significant effects** are likely between the Proposed Project and other developments. However, owing to the number of offshore developments, interconnectors and aggregate areas proposed off the south and east coasts, a vast area of the seabed will potentially be, or is currently being, investigated for EIA purposes. It is worth noting that as a result of these investigations, there will be considerably more currently unknown archaeological receptors being discovered. And it is likely that some of these discoveries will be archaeologically significant, for example wooden shipwrecks, requiring increased project-specific mitigation that developers will be required to finance. Further investigation will need to be decided and undertaken in liaison with the Archaeological Curator, Historic England, and the National Grid Electricity Transmission plc (National Grid), and could ultimately lead to a significant site being excavated, recovered material and finds being conserved and accessioned to a museum, and finally disseminating all associated recording and reporting. It is possible that a regional thematic approach to dealing with these types of seabed resources could be initiated.

Shipping Navigation

Table 4.12.26 Shipping and Navigation Assessment of Total Cumulative Effects

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
Shipping and Navigation	The potential interactions with the Proposed Project and the short-listed projects present minimal cumulative effects to shipping and navigation. As such none of the short-listed projects are progressed to stage 3 and stage 4 as **no significant effects** are likely.		

4.12.3.19 The potential interactions with the Proposed Project and the short-listed projects present minimal cumulative effects to shipping and navigation. As such none of the short-listed projects are progressed to stage 3. Broadly, the small spatial, temporal and transient footprint of the construction operation limits interactions and permits straight-forward management or minimisation of any residual interaction potential. The operational phase of the Proposed Project principally interacts with the shortlisted projects through crossing/proximity agreements with third-party subsea cable asset owners and aggregate extraction site rights holders. Crossings will be undertaken using agreed crossing designs and schedules, in accordance with crossing agreements and will ensure suitable protections where necessary. These crossings are included as part of the project design and are not therefore considered as constituting cumulative effects. The proximity of the Proposed Project to aggregates and mining agreement sites presents a small potential for dredging and mining vessels to interact with the subsea asset however proximity agreements shall be established to manage risks and minimise disruption.

4.12.3.20 Ultimately the potential overlaps in ZOI and temporal scope present only incremental increases in potential hazards to fishing gear, anchors or seabed activities. This is suitably addressed via risk based burial approach, crossing design and proximity agreements and therefore not likely to have significant cumulative effects. The overall preliminary assessment of cumulative effects concluded **no significant effects** are likely between the Proposed Project and other developments.

Commercial Fisheries

Table 4.12.27 Commercial Fisheries Assessment of Total Cumulative Effects

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
Mobile gear fisheries	The potential interactions with the Proposed Project and the short-listed projects present minimal cumulative effects to commercial fisheries. As such none of the short-listed projects are progressed to stage 3 and stage 4 as **no significant effects** are likely.		
Static gear fisheries			

4.12.3.21 The potential interactions with the Proposed Project and the short-listed projects present minimal cumulative effects to commercial fisheries. As such none of the short-listed projects are progressed to stage 3 and stage 4. The potential overlaps in ZOI and temporal scope present only incremental increases in potential hazards to fishing gear, anchors and/or seabed activities. This is suitably addressed via risk based burial approach, crossing design and proximity agreements and therefore not likely to have significant cumulative effects. The overall preliminary assessment of cumulative effects concluded **no significant effects** are likely between the Proposed Project and other developments.

Other Sea Users

Table 4.12.28 Other Sea Users Assessment of Total Cumulative Effects

Shared receptor	Relevant other developments	Summary of the assessment of cumulative effects with each of the other developments	Overall assessment of preliminary assessment of cumulative effects
Marine Tourism and Recreation	The potential interactions with the Proposed Project and the short-listed projects present minimal cumulative effects to other sea users. As such none of the short-listed projects are progressed to stage 3 and stage 4 as **no significant effects** are likely.		

Offshore Infrastructure	The potential interactions with the Proposed Project and the short-listed projects present minimal cumulative effects to other sea users. As such none of the short-listed projects are progressed to stage 3 and stage 4 as **no significant effects** are likely.

4.12.3.22 The potential interactions with the Proposed Project and the short-listed projects present minimal cumulative effects to other sea users. As such none of the short-listed projects are progressed to stage 3 and stage 4. Broadly, the small spatial, temporal, and transient footprint of the construction operation limits interactions and permits straight-forward management or minimisation of any residual interaction potential. The operational phase of the Proposed Project principally interacts with the shortlisted projects through crossing/proximity agreements with third-party subsea cable asset owners and aggregate extraction site rights holders. Crossings will be undertaken using agreed crossing designs and schedules, in accordance with crossing agreements and will ensure suitable protections where necessary. These crossings are included as part of the project design and are not therefore considered as constituting cumulative effects. The proximity of the proposed project to aggregates and mining agreement sites presents a small potential for dredging and mining vessels to interact with the subsea asset however proximity agreements shall be established to manage risks and minimise disruption. The overall preliminary assessment of cumulative effects concluded **no significant effects** are likely between the Proposed Project and other developments.

4.12.4 Summary

4.12.4.1 The assessment of inter-cumulative effects for the Proposed Project the short-listed projects identified in stage 3 has concluded **no significant effects** after the application of mitigation measures for all topics.

4.12.5 References

Ref 12.1: National Infrastructure Planning (2019). Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects. Published August 2019 (Version 2).

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